



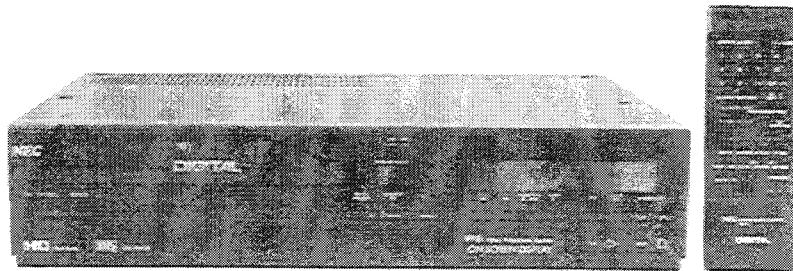
DIGITAL
MODEL DX-1000G

COLOR VIDEO CASSETTE RECORDER
SERVICE MANUAL

PARTS NO. 549-91-0408



Better Service
Better Reputation
Better Profit



SPECIFICATIONS

Format	: VHS PAL standard	Video	
Recording system	: Rotary, slant azimuth two-head helical scanning system	Input	: 0.5 to 2.0 Vp-p, 75 ohms unbalanced
Video signal system	: PAL colour and CCIR monochrome signal, 625 lines.	Output	: 1.0 ±0.1 Vp-p, 75 ohms unbalanced
Tape width	: 12.65 mm (1/2 inch)	S/N ratio	: More than 43 dB
Tape speed	: 23.39 mm/sec.	Horizontal resolution	: 250 lines with the SHARPNESS control at center position.
Maximum recording time	: 240 min. with E-240 video cassette	Audio	
Temperature operating storage	: 5°C to 40°C : -20°C to 60°C	Input	: -8 dB, 47 kohms unbalance
Channel coverage	: VHF BAND VL: 47 - 118 MHz VHF BAND VH: 118 - 300 MHz UHF BAND U: 470 - 862 MHz	Output	: -6dB, high impedance load
Antenna output	: UHF channels 30-39 (adjustable) 75 ohms unbalanced	S/N ratio	: More than 40 dB
Power consumption	: 40 Watts	Frequency range	: 70 Hz to 10,000 Hz
Power requirement	: AC 220V ~ 50 Hz	Timer	: Maximum 1-year/4-event
		Dimensions	: 430mm (W) × 99mm (H) × 175mm (D)
		Weight	: 7.8 kg
		Provided accessories	: Remote control unit Antenna cable Size R6 batteries (2 pieces)

Design and specifications are subject to change without notice

NEC Corporation
TOKYO, JAPAN

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SECTION 1

Important Safety Precautions

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the  symbol and shaded (▨) parts are critical for safety. Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:

- 1) Insulation Tape
- 2) PVC tubing
- 3) Spacers
- 4) Insulation sheets for transistors

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering. (Fig. 1)

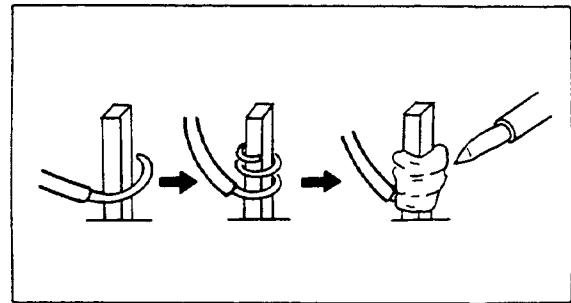


Fig. 1

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

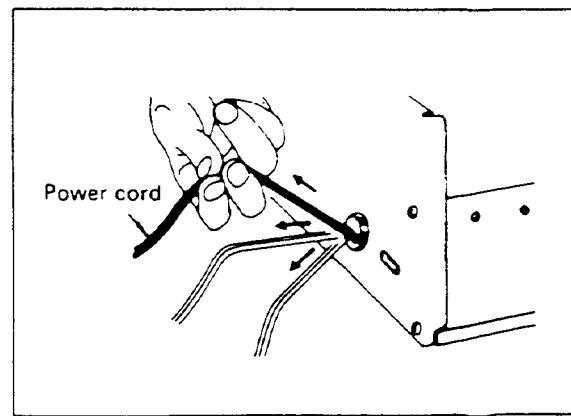


Fig. 2

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it. (Fig. 2)

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

●Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) See table below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d),(d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

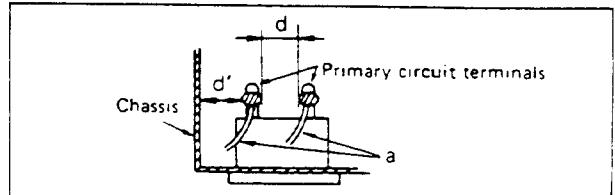


Fig. 8

Table 1: Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance(d),(d')
100 V	Japan	$\geq 1 \text{ M}\Omega/500 \text{ V DC}$	1 kV 1 minute	$\geq 3 \text{ mm}$
110 to 130 V	USA & Canada	---	900 V 1 minute	$\geq 3.2 \text{ mm}$
* 110 to 130 V 200 to 240 V	Europe Australia	$\geq 10 \text{ M}\Omega/500 \text{ V DC}$	4 kV 1 minute	$\geq 6 \text{ mm } (d)$ $\geq 8 \text{ mm } (d')$ (a: Power cord)

* Class II model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between B(earth ground,power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

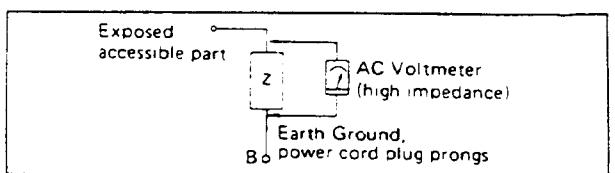


Fig. 9

Table 2: Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
100 V	Japan	$0.15 \mu\text{F} - 1 \text{ k}\Omega$	$i \leq 1 \text{ m A rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F} - 1 \text{ k}\Omega$	$i \leq 0.5 \text{ m A rms}$	Exposed accessible parts
110 to 130 V 200 to 240 V	Europe Australia	$0.15 \mu\text{F} - 2 \text{ k}\Omega$	$i \leq 0.7 \text{ m A peak}$ $i \leq 2 \text{ m A dc}$	Antenna earth terminals
		$0.15 \mu\text{F} - 50 \text{ k}\Omega$	$i \leq 0.7 \text{ m A peak}$ $i \leq 2 \text{ m A dc}$	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

IMPORTANT: It is permissible to record television programmes only in the event that third party copyrights and other rights are not violated.

**WARNING:
TO PREVENT FIRE OR SHOCK
HAZARD, DO NOT EXPOSE THIS
UNIT TO RAIN OR MOISTURE.**

CAUTION

Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

MAINS POWER SWITCH

The mains switch is located on the rear connector panel. Setting this switch to OFF removes all applied power from the set including the timer clock. Switching on or off the recorder section is performed with the secondary power switch, labelled OPERATE, on the front panel.

NOTE: The rating plate and the safety caution are on the rear of the unit.

CAUTION: When you are not using the VCR for a long period of time, it is recommended that you disconnect the power cord from AC outlet.

This instruction manual is important to you. Please read it. In a brief, concise manner, it shows exactly how to connect, operate and adjust the VCR for best performance. It can save you money. It shows you simple things to do and check before you call for help...so you may save the cost of unnecessary service.



Only cassettes marked "VHS" can be used with this video cassette recorder.

VHS High Quality technology is incorporated into VCR's marked "HQ". This unit is compatible with conventional VHS VCR's.

GENERAL NOTES:

- This recorder is designed to operate in a horizontal position.
- Do not install the recorder in a location near heat sources, such as radiators, air ducts, etc., or in a place subjects to direct sunlight, excessive dust, mechanical vibration or shocks.
- Allow adequate air circulation to prevent internal heat built-up. Do not place the recorder on surfaces such as rugs, blankets, etc, or near materials such as curtains or drapes, etc., that may block the ventilation holes.
- Keep the recorder and video cassette away from strong magnetic fields.
- After playing a tape, remove the video tape from the VCR if the VCR is not going to be used for an extended length of time.
- Do not transport the recorder with a video cassette in place.
- To disconnect the cord, pull it by the plug. Never pull the cord itself.
- Generally, head cleaning by the user is not required. Should snow of streaks appear in the playback picture after having used the recorder for an extended period of time, consult your nearest NEC dealer.
- Should any liquid or solid object fall into the VCR cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.
- Save the original shipping carton and packing material; they will come in handy if you ever have to ship your recorder.
- For maximum protection, repack the recorder at it was originally packed at the factory.
- This machine is designed to record and play back the PAL colour and CCIR monochrome video signals.
- Do not place any magnetism emitting device (TV set, etc.) on top of the VCR. Otherwise noise or other screen disturbances may occur.
- Do not place any object heavier than 15 kg on the VCR.

FEATURES

NEC DIGITAL NOISE REDUCTION

This VCR features NEC's Digital Noise Reduction System. Using a technique known as field correlation, video noise is dramatically reduced without loss of detail. In fact, NEC's Digital Noise Reduction system improves the video signal-to-noise ratio up to 9dB!

DIGITAL SPECIAL EFFECTS

NEC's digital technology produces noise-free STOP ACTION (still) without time lag and SLOW MOTION (1/3 normal speed).

DIGITAL PICTURE MEMORY

While viewing a tape or TV program through the VCR's built-in tuner, a live image can be memorized and frozen on the TV screen while the cassette or TV program continues to run in real-time.

STROBE ACTION

Variable Strobe effects are provided for both video playback and on-air TV broadcasts without audio interruption.

This exciting feature is a new video effect and not available in conventional VCRs.

1-YEAR/4-EVENT PROGRAMMABLE TIMER

The user can programme the timer so that the VCR will automatically record up to four TV shows in the coming year. An indicator points out errors made during programming, and if a prerecorded tape with a missing safety tab is accidentally inserted, the unit will eject the cassette.

ON SCREEN FUNCTION AND TIMER DISPLAY

When you activate a tape function, such as play, fast-forward or rewind, the corresponding display appears on the TV screen. When programming the timer, a menu showing the timer contents is displayed, making remote programming easy.

MULTI FUNCTION DISPLAY

You can confirm the operating status of the VCR at a glance thanks to a fluorescent indicator that graphically shows the engaged mode. Modes shown are: PLAY, RECORDING, PAUSE/STILL, FAST FORWARD, REWIND, CUE, REVIEW and STOP. Other indications shown are CASSETTE IN, NO TAB, 4-DIGIT COUNTER.

SEGMENT RECORDING

Segment recording allows the VCR timer to automatically stop recording and shut power off. Each touch of the SEGMENT REC button will add 30 minutes worth of recording time, up to a maximum of 5 hours. In addition, the setting time can be set to one minute segments by pressing the CHANNEL/SET (V)/(A) buttons.

JET SEARCH PROVIDES FAST LOCATION OF SCENE

The picture search function runs the tape at 4 times the speed of the normal playback, making it easy to locate a specific scene. If you want to search for a particular scene faster, then you should press the Fast Forward or Rewind button a second time. When you do, the JET SEARCH function will run the tape, at 8 times normal playback.

55 FUNCTION UNIFIED REMOTE CONTROL UNIT OPERATES BOTH VCR AND TV.

The unified infrared remote control supplied with the DX-1000B is capable of operating both the VCR and compatible NEC TVs. This remote control unit can control basic VCR/TV functions as well as timer programming functions.

HQ (HIGH QUALITY) VIDEO SYSTEM

The "High Quality" circuit increases the dipping level for peak white by 20%, adding sharpness and ensuring detailed reproduction thanks to the use of a Detail Enhancer Technic.

VOLTAGE SYNTHESIZED TUNER

The built-in tuner covers all VHF and UHF channels. Of all the channels which are tunable, 40 may be conveniently memorized and recalled.

AUTO POWER ON

We have made the VCR as automatic as technically possible. When a tape is inserted, power is automatically switched on.

AUTO PLAYBACK

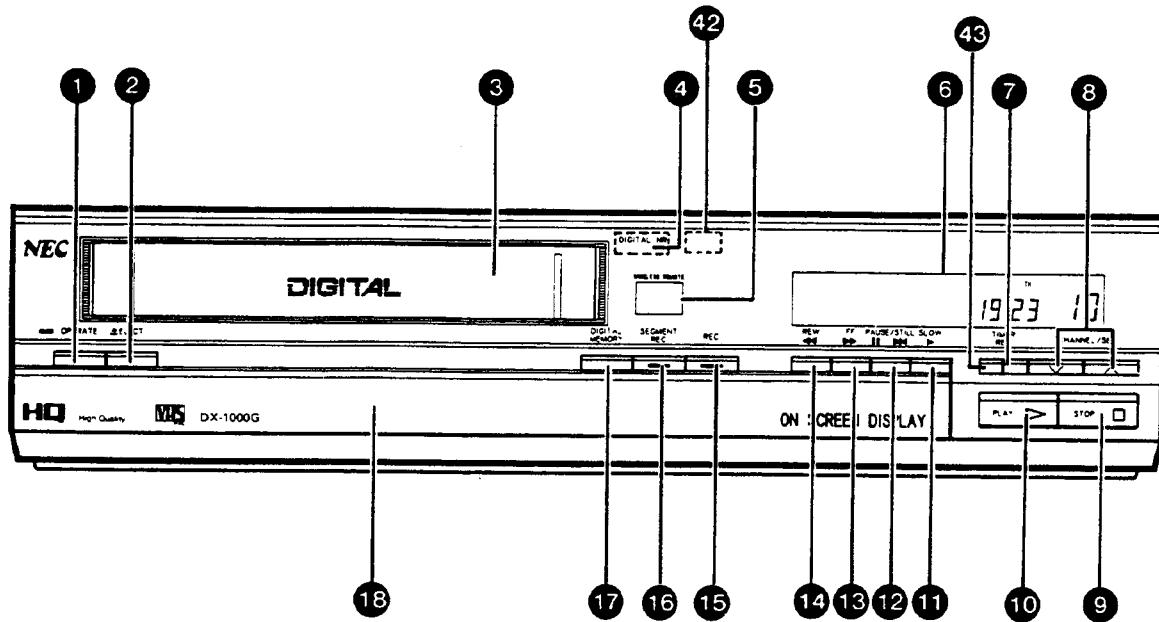
The VCR will begin playback automatically if the video cassette has no safety tab.

POWER OFF EJECT

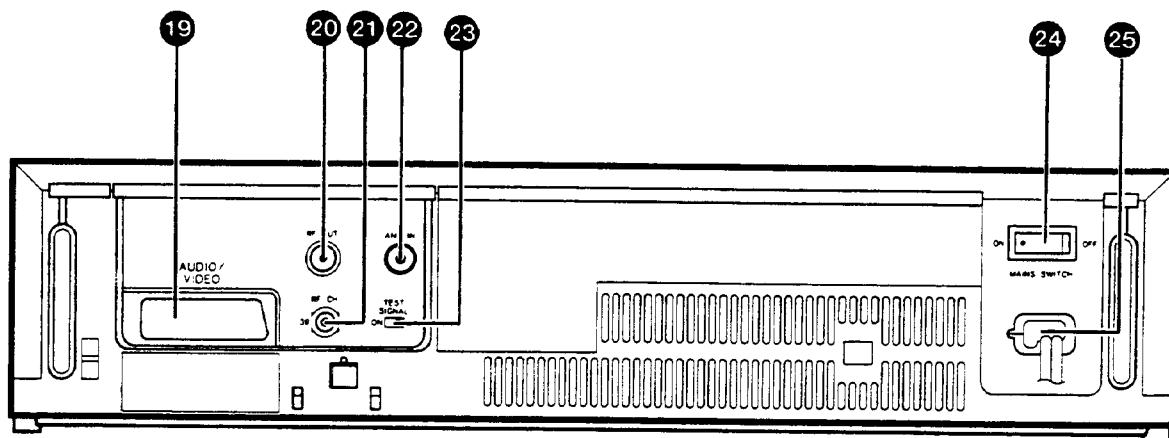
Even if the VCR is turned off, the tape can be removed by pressing the EJECT button.

CONTROLS AND COMPONENTS

FRONT VIEW



REAR VIEW



FRONT VIEW:

① OPERATE button

This button is used to turn the VCR on and off.

② EJECT button

Press this button to remove the cassette.

③ Cassette compartment

④ DIGITAL NR indicator

Lights when the DIGITAL NR switch is switched ON.

⑤ Infrared remote sensor

This sensor is used for receiving infrared signals from the remote control.

⑥ Display

⑦ TIMER REC button

This button is used for unattended recording after the timer has been programmed. When this button is on, the timer recording indicator "■" lights in the display. When this light is on, the unit is under the control of the timer and cannot be operated manually.

⑧ CHANNEL/SET (▽)/(△) buttons

Use to select the specific channel which you wish to view or record. Also used during Time Setting or Timer Programming.

⑨ STOP button

Press this button to stop the tape.

⑩ PLAY button

Press this button to play back pre-recorded tapes.

⑪ SLOW button

Press this button to activate slow motion playback.

⑫ PAUSE/STILL button

A) Use to temporarily stop the tape during recording or playback.

B) Use to view a still picture on the TV screen.

⑬ FAST FORWARD/CUE button

Press this button to:

A) move the tape forward rapidly.

B) to view a high-speed forward picture (picture search) during playback.

⑭ REWIND/REVIEW button

Press this button to:

A) rewind tape in reverse rapidly.

B) to view a high-speed reverse picture (picture search) during playback.

⑯ REC button

Recording is started by pressing this button.

⑰ SEGMENT REC button

Press this button to set the segment recording timer for simplified timer recording up to 5 hours in 30 minute segments.

⑯ DIGITAL MEMORY button

When pressed during playback or recording, a stop action picture is displayed, while the tape continues to run in real-time.

When pressed while monitoring a TV program through the VCR's built-in tuner, a still picture is displayed while the TV program continues live.

⑰ Front Compartment

REAR VIEW:

⑲ 21-pin SCART Connector (AUDIO/VIDEO connector)

A 21-pin Standardised SCART connector for connection to a TV equipped with the same type of connector.

⑳ RF OUT connector

Connect to the antenna terminal of a TV with the antenna cable (provided).

㉑ RF converter frequency adjustment screw

㉒ ANT IN terminal

Connect a TV antenna to this connector.

㉓ TEST SIGNAL switch

Normally, set this switch to the OFF position.

This switch is used when tuning your TV to the VIDEO CHANNEL

㉔ MAINS switch

To apply power to the VCR, set this switch to ON. When this switch is set to OFF, the timer clock and the built-in aerial circuit are off. In this condition, the TV connected to this VCR will not be able to properly receive off-air TV programmes. Normally, leave this switch set to ON.

㉕ Power cord

Connected AC 220 V ~, 50 Hz.

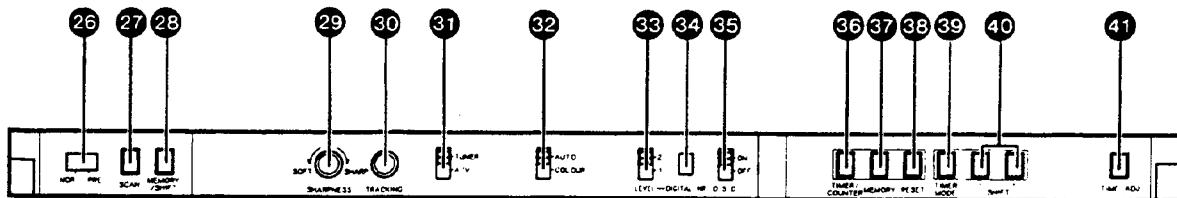
㉖ VPS signal Indicator

Lights when a VPS signal is received.

㉗ VPS REC button

This button is used for unattended recording after the timer has been programmed. When this button is on, the timer recording indicator "■" and VPS recording indicator "VPS" light in the display. When these lights are on, the unit is under the control of the VPS timer and cannot be operated manually.

FRONT COMPARTMENT



⑥ NORMAL/PRESET (NOR./PRE.) switch

This switch is used for Channel presetting.

This switch should usually be set to the NOR. position.

⑦ SCAN button

This button is used for Channel presetting.

The tuning channel moves to a higher channel by pressing this button.

⑧ MEMORY/SHIFT button

This button is used for Channel presetting.

This button is pressed to enter a tuned channel into memory.

⑨ SHARPNESS control

Slide this control to the left (SOFT) to soften the picture, and slide it to the right (SHARP) to sharpen the picture.

⑩ TRACKING control

Use this control during playback to fine tune the picture and eliminate or reduce noise bars.

⑪ Input select switch

TUNER: To record signals from the built-in tuner.
A/V: To record signals from a source connected to the SCART connector.

⑫ AUTO/COLOUR select switch

AUTO: Colour or B/W mode is automatically selected. Set to this position for normal use.

COLOUR: Set to this position when the input or playback video signal is in colour.

⑬ NR (Noise Reduction) LEVEL control

Determines the amount of digital noise reduction applied to the picture when the DIGITAL NR switch is set to the ON position.

⑭ DIGITAL NR (Noise Reduction) switch

When switched ON, the digital noise reduction circuit is activated, reducing video noise. Digital noise reduction is not applied when this switch is in the OFF position.

⑮ ON SCREEN Display (O.S.D) switch

ON: Function display appears On Screen

OFF: On Screen function display does not appear on screen.

⑯ TIMER/COUNTER button

This button switches the digital display between the timer and tape counter modes.

⑰ MEMORY (counter) button

Enables you to automatically stop the tape at "0000" during rewind or fast forward.

⑱ RESET button

In normal operation pressing this button, the tape counter will be reset to "0000". If this button is pressed during timer programming, the re-entered programme will be cleared.

⑲ TIMER MODE button

Pressing this button changes the information appearing on the display from:

PRESENT TIME to TIMER PROGRAMMING to PRESENT TIME.

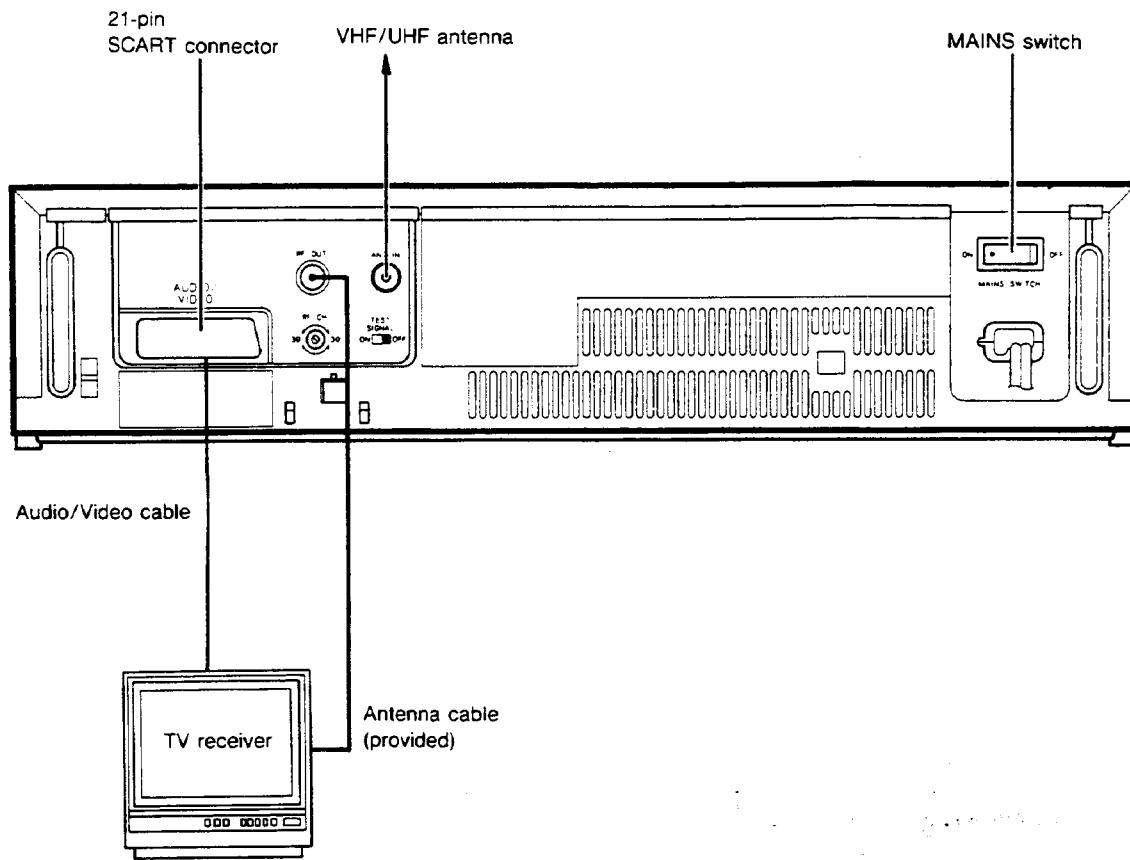
⑳ SHIFT (-)/(+) buttons

These buttons are used for Time Setting and Timer Programming.

㉑ TIME ADJUSTMENT (TIME ADJ.) button

This button is used for Time Setting.

ANTENNA CONNECTION



Procedure

1. Remove the antenna cable from the TV receiver and reconnect it to the VCR as illustrated. The VCR is then ready to record off-air programmes.
2. Connect the VCR to the TV using the antenna cable (provided) as illustrated. The TV is then ready to receive TV broadcast programmes as well as accommodate video cassette playback.
3. Connect the 21-pin SCART connector on the rear of the VCR and the SCART connector of the TV set using the Audio/Video cable.

Note:

Even when you are not using the VCR, the rear panel MAINS switch should be set to ON in order to be able to view TV broadcasts with this connection.

For reference

- Previously, when you were using only the TV, broadcast signals went to the TV directly from the antenna. Now, after you have connected the VCR to the TV, broadcast signals enter the VCR directly from the antenna and go to the TV through the VCR.
- In order to transmit entering broadcast signals to the TV, an antenna circuit is built into the VCR.

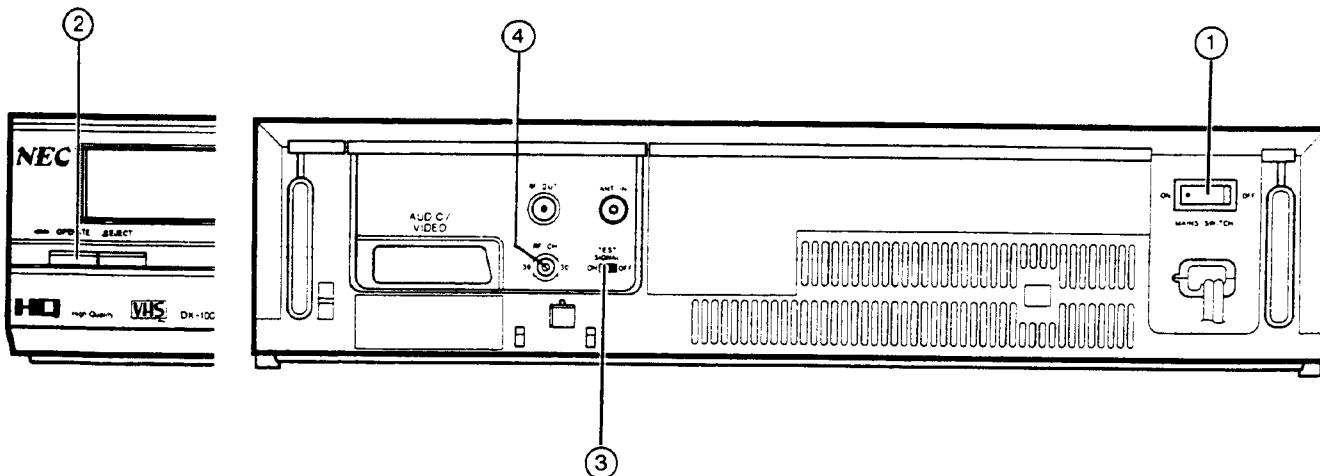
This antenna circuit must be on as long as you are viewing TV programmes even though you are not using the VCR. If the MAINS switch is set to OFF, the VCR's antenna circuit is also switched off. In this state, the connected TV cannot properly receive off-air TV programmes and a good picture is not obtained. Therefore, normally, keep the MAINS switch set to ON.

VIDEO CHANNEL SETTING

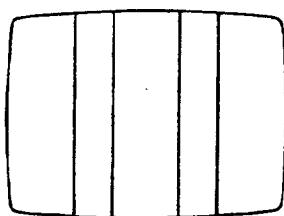
Resetting the RF converter output channel

The built-in RF converter permits playback of video and audio recordings through a TV. The signals from the RF converter are viewed through a vacant channel not used for TV broadcasting in your viewing area.

The converter channel of all units is set to UHF channel 36 prior to shipment. Setting your TV receiver to UHF channel 36 may provide video playback. However, to obtain the best possible reproduction on your TV receiver, accurate adjustment of the RF converter output channel is required.



1. Set the MAINS switch ① to ON and press the OPERATE button ② on the front panel to turn on the VCR. Turn on the TV.
2. Set the TEST SIGNAL switch ③ to ON.
3. Adjust the TV in the vicinity of UHF channel 36 until you bring in the two white signal bars on the screen as illustrated. This setting is now the VIDEO CHANNEL of the TV to which the VCR is connected.
4. Set the TEST SIGNAL switch ③ to OFF.



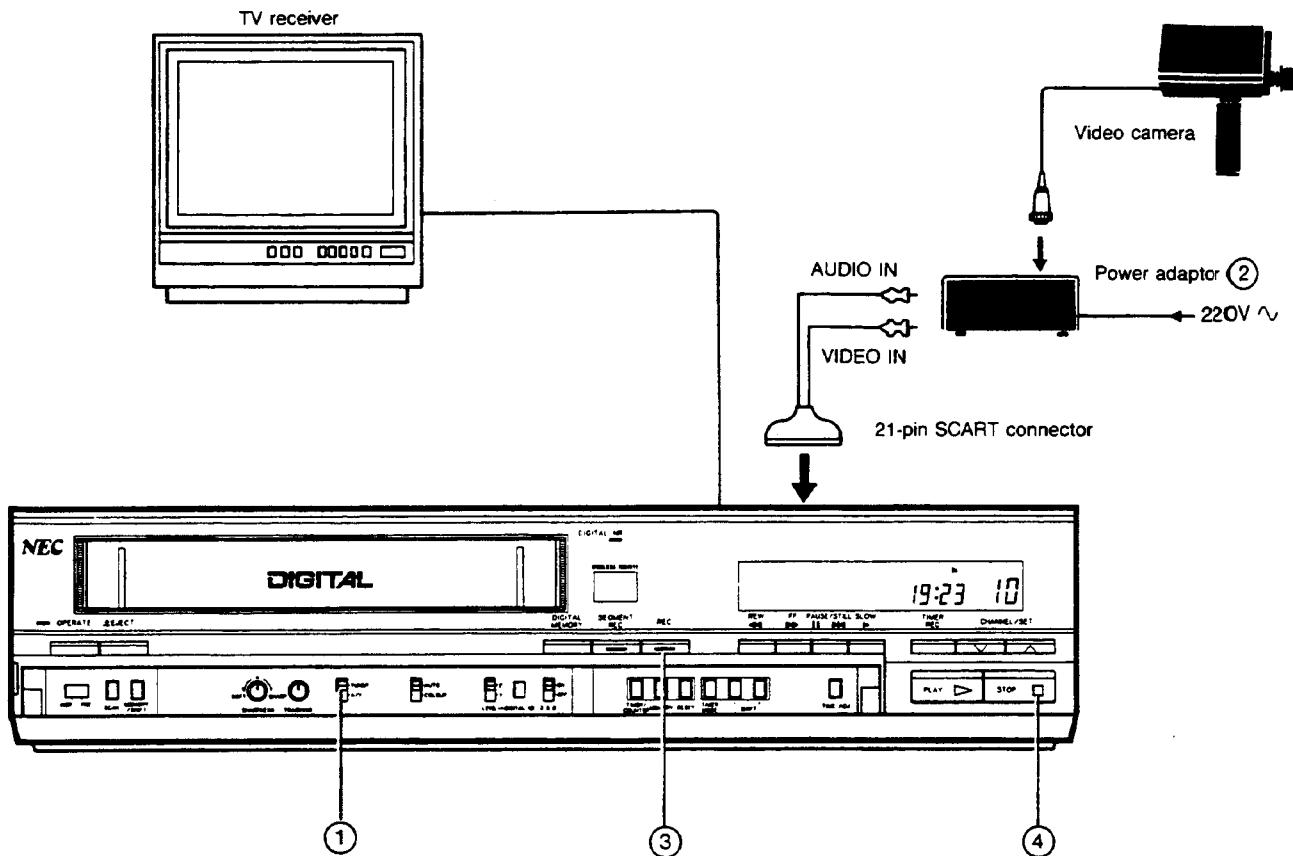
Notes:

- When you adjust the TV to channel 36 for video playback, if some interference noise is seen on the screen because of broadcasts on neighbouring channels or if preset broadcasts are affected in terms of picture quality, it is necessary to adjust the RF converter output more accurately the RF converter output.
- For this purpose, insert a screwdriver into the hole on the rear of the VCR and re-adjust the RF converter frequency adjustment screw ④ in minute steps. Then tune the TV once again until a clear picture is obtained. This adjustment requires extreme precision and must be done with the utmost care. We recommend that you consult your NEC dealer for making this adjustment.
- Be sure to set the TEST SIGNAL switch ③ to OFF after VIDEO CHANNEL tuning has been completed.
- If a prerecorded VHS cassette is available, TV adjustment for VIDEO CHANNEL setting is also possible using it to obtain a playback picture. Insert the cassette and operate the VCR for playing back the cassette. Then tune the TV to obtain clear picture and sound while monitoring the playback picture on the TV screen.
- If the TV is not provided with an AFC (Automatic Frequency Control) circuit, perform fine tuning of the TV receiver when you are actually viewing playback of video cassettes.

CAMERA RECORDING

Preparation

- Connect a video camera according to the illustration below.
- Insert a video cassette with the safety tab intact.
- Turn the TV on and adjust the channel to the video channel.



1. Set the input select switch ① to A/V.
 2. Turn the power adaptor on ② and make adjustments on the video camera. (Please read the owner's operation manual of the camera.)
 3. Press the REC button ③.
 4. Press the STOP button ④ to stop recording.
- When reverting back to recording the TV programme, set the input select switch ① to TUNER.

BEFORE REQUESTING SERVICE

Before requesting service, check the following items. It can save you time and money.

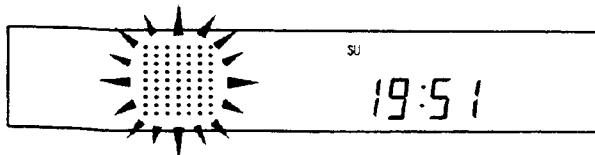
PROBLEM	CHECK	CORRECTION
No Power	AC cord plugged in? MAINS switch on? Timer recording set?	Plug in AC cord. Turn on MAINS switch. Set timer recording off.
Video Cassette cannot be inserted.	A video cassette already in? A video cassette inserted correctly?	Replace it. ● Insert the video cassette with the window side up and the safety tab facing you.
TV Programmes cannot be recorded.	Connection between VCR and antenna correct? Receiving Channel of VCR tuned correctly? Safety tab broken? Input select switch position	Fix connections Adjust to desired channel. If broken, fix adhesive tape over the hole. Set to TUNER.
Timer recording cannot be performed.	Recording start/stop time set correctly? TIMER REC button on?	Set correct times. Press TIMER REC button on. ● In the event of a power interruption, the timer will lose its preset time memory and timer recording will not be performed.
No playback picture	TV tuned to VCR's RF output channel?	Tune TV to VCR's RF output channel (30 to 39).
Playback picture is noisy or contains streaks.	TRACKING in correct position?	Adjust TRACKING control.
Top of the playback picture waves back and forth excessively.		Adjust horizontal hold control on TV.

If A Power Failure Occurs ...

- There are two cases; (a): if a operate failure continues for less than approx. 10 minutes, the display disappears but the clock continues operation. When operate resumes, the correct current time will reappear in the display. The contents of timer programming remains in effect. Also: (b): If a operate failure continues for longer than 10 minutes, the display will return to "0:00", "TH" (Thursday), and blink off and on when power returns. In this case, reset the clock and timer programming again, referring to pages 14 and 21 to 24.

When Tape Movement Stops Automatically ...

- If trouble occurs during tape movement or to the mechanism inside the VCR, a safety device works to stop the operation of the VCR automatically. This prevents damage to the VCR and the tape. If this occurs the ALARM indicator will be shown in the display and the power will be turned off automatically.



(STOP indicator is flashing.)

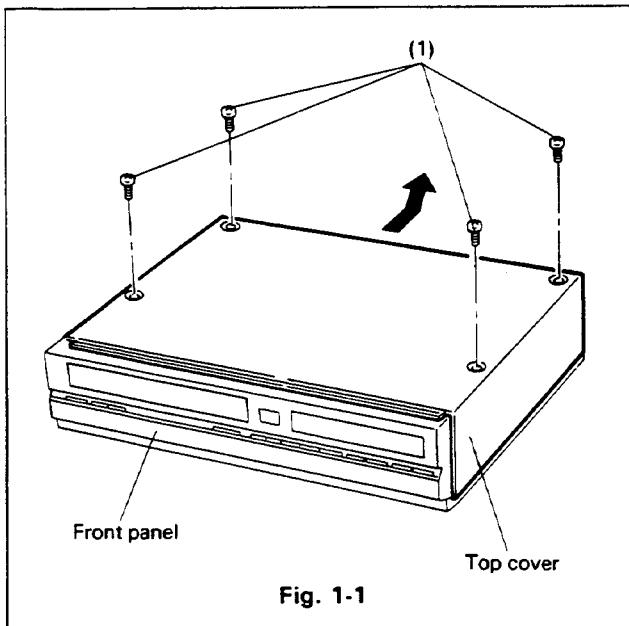
- Pressing the OPERATE button will turn the VCR on.
- If moisture (dew) is present on the head drum assembly inside the VCR, the VCR cannot be operated. Remove the video cassette, and operate again after a few hours. Leave the power cord plugged in and the MAIN switch on for the anti-dew function to take place.
- This VCR has a HUMIDITY REDUCTION SYSTEM, which operates only when the power cord is plugged into an electrical outlet and the VCR is turned off. It is suggested that the power cord be kept connected to an electrical outlet during winter and other months of HIGH HUMIDITY to protect the device from MOISTURE, unless you will be away for a long period of time.

SECTION 2 DISASSEMBLY

1. REMOVING THE CASE

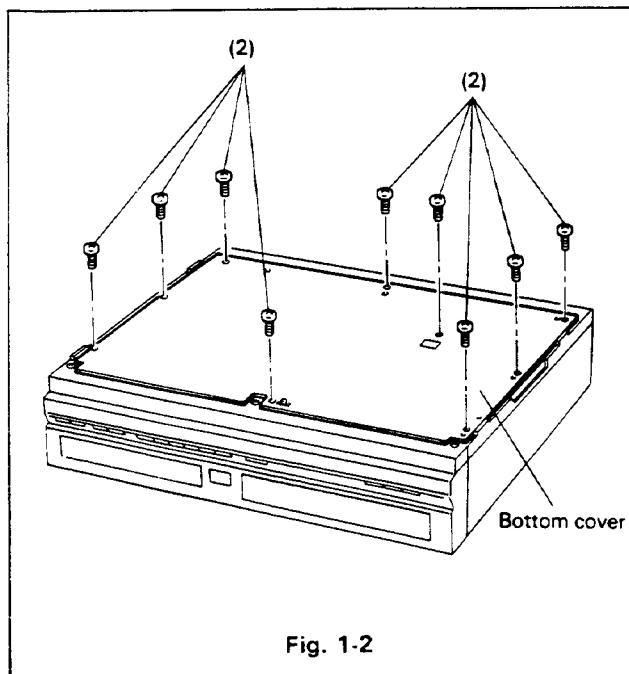
1-1. TOP COVER (Figure 1-1)

- (1) Remove four screws (1) on the top cover.
- (2) Lift the rear of the top cover to release it in the direction of the arrow from the front panel.



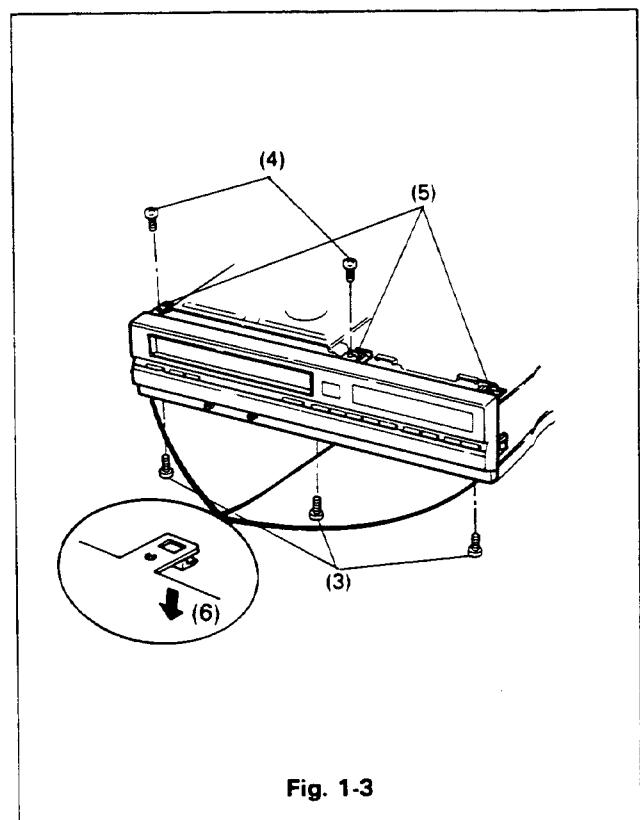
1-2. BOTTOM COVER (Figure 1-2)

- (1) Remove nine screws (2) on the bottom cover.



1-3. FRONT PANEL (Figure 1-3)

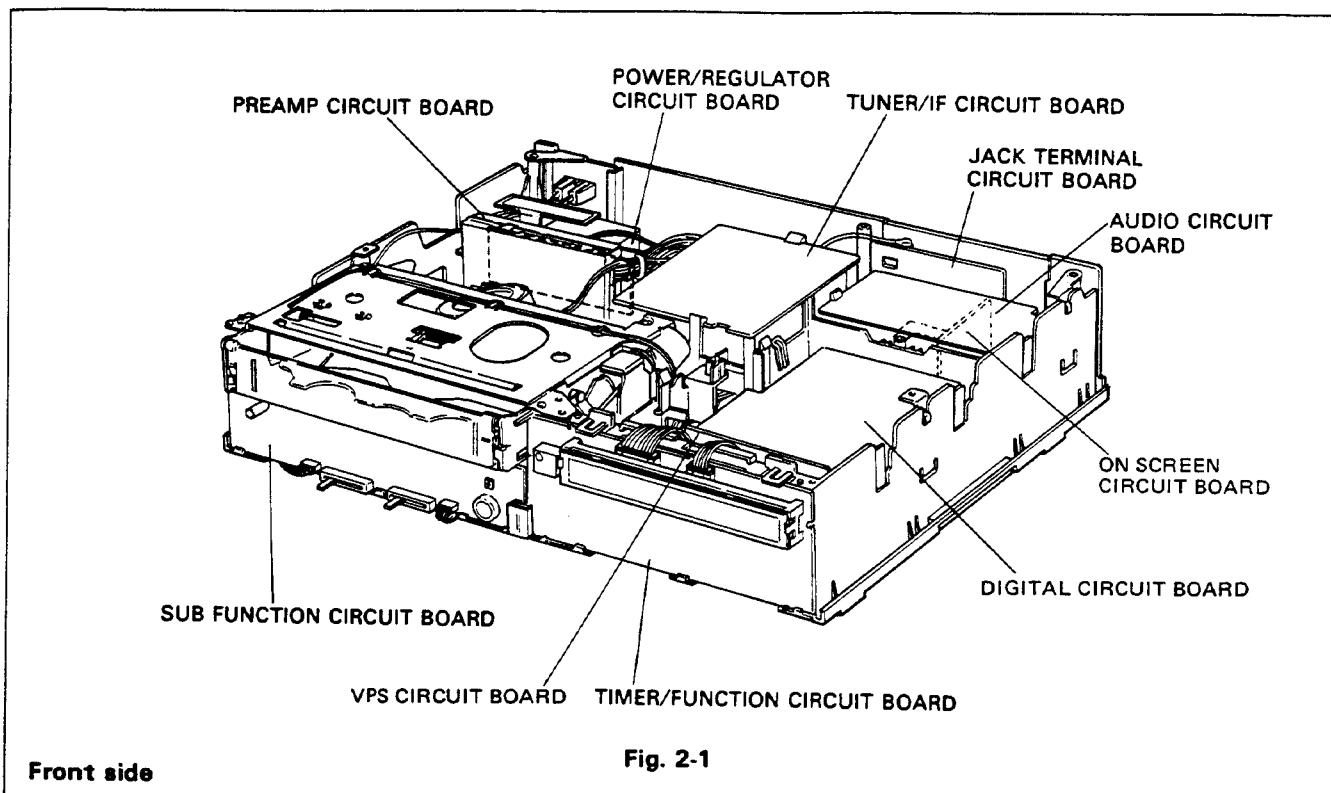
- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (3) on the bottom of the front panel.
- (3) Remove two screws (4) on the top of the front panel.
- (4) Release tabs (5).
- (5) Release tabs (6), and tilt the front panel forward to remove.



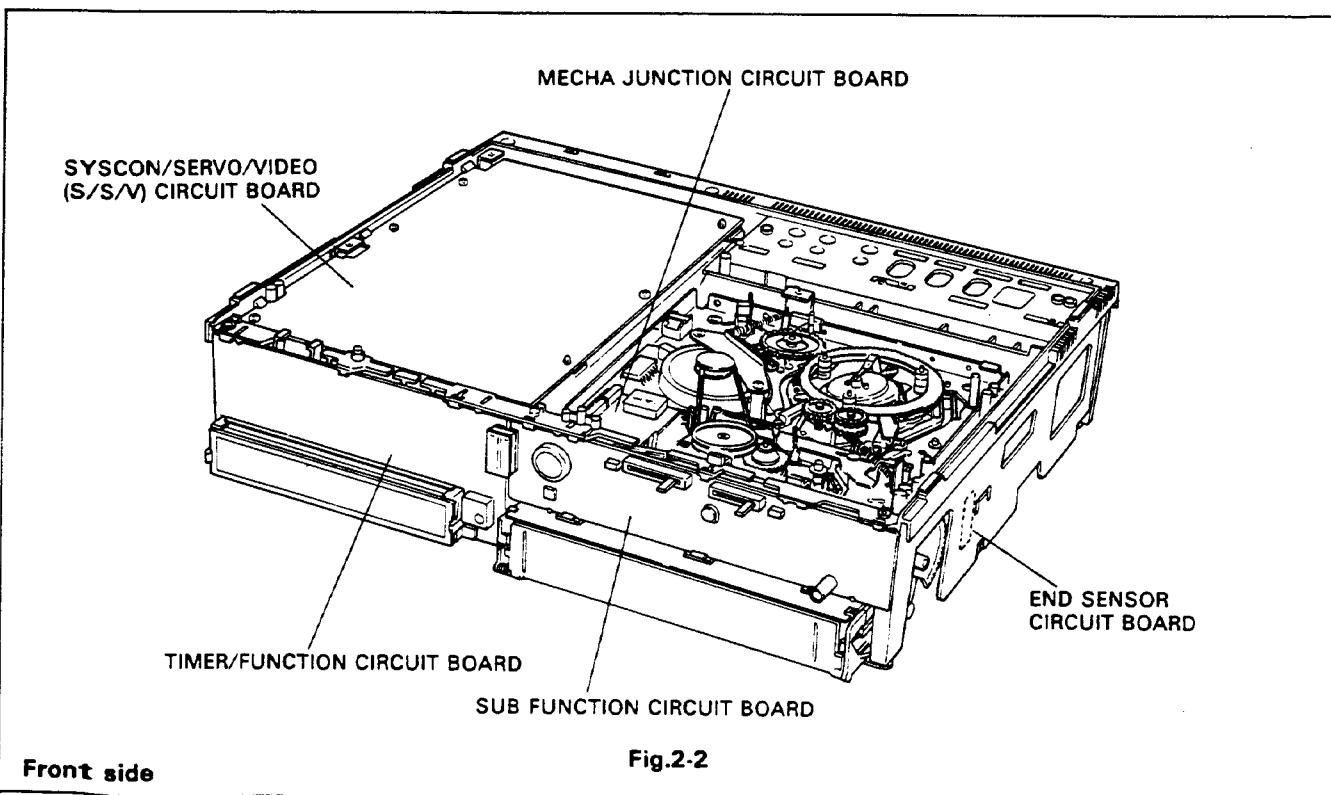
Note: After releasing tabs (6), be sure to handle the tab set very carefully; Otherwise, the released tabs may return to their original locked positions.

2. CIRCUIT BOARD LOCATIONS

2-1. TOP VIEW



2-2. BOTTOM VIEW



3. REMOVING THE CIRCUIT BOARDS

3-1. SUB FUNCTION CIRCUIT BOARD (Figure 3-1)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Disconnect five wire connectors (1) from the circuit board.
- (3) Release three tabs (2) on the top of the circuit board in the direction of the arrow, and lift the circuit board to remove.

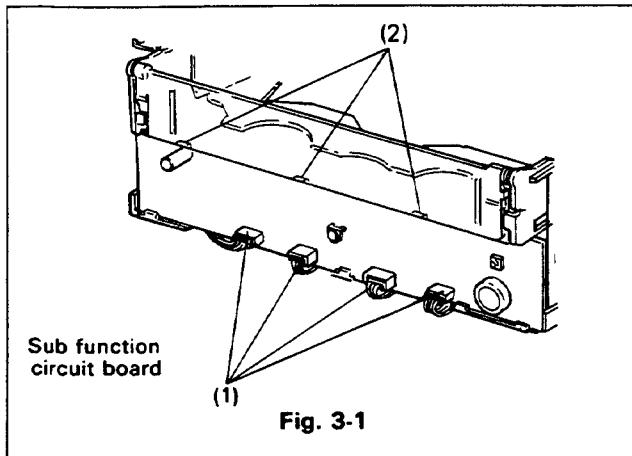


Fig. 3-1

3-3. PREAMP CIRCUIT BOARD (Figure 3-3)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove two screws (1).
- (3) Disconnect three wire connectors (2) from the preamp circuit board.

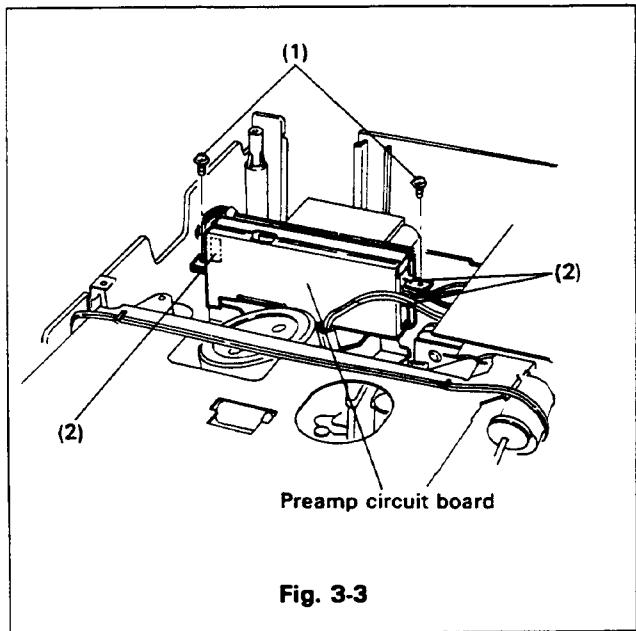


Fig. 3-3

3-2. TIMER/FUNCTION CIRCUIT BOARD (Figure 3-2)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Disconnect eight wire connectors (1) from the circuit board.
- (3) Release two tabs (2), and lift the circuit board to remove.

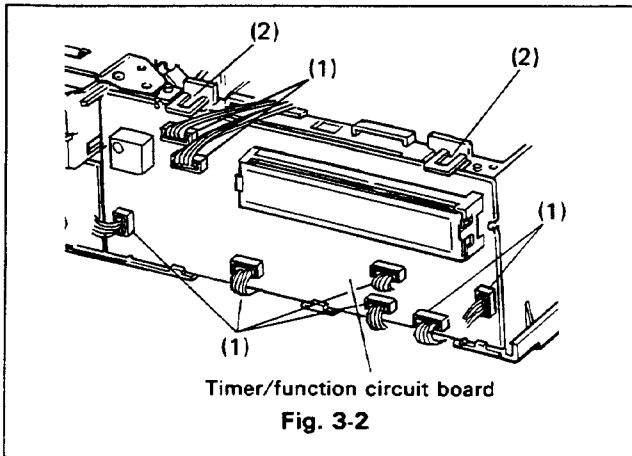
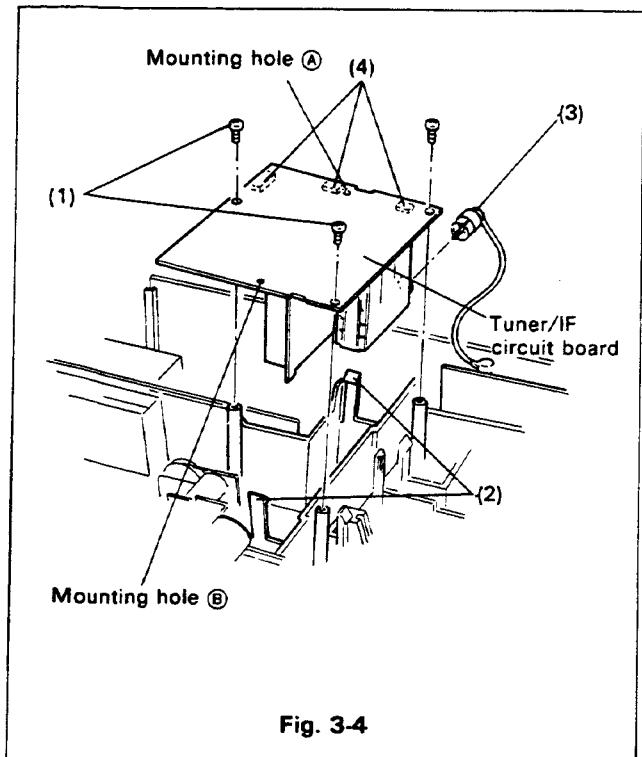


Fig. 3-2

Note: Be very careful not to damage the drum head circuit board when removing the preamp circuit board.

3-4. TUNER/IF CIRCUIT BOARD (Figure 3-4)

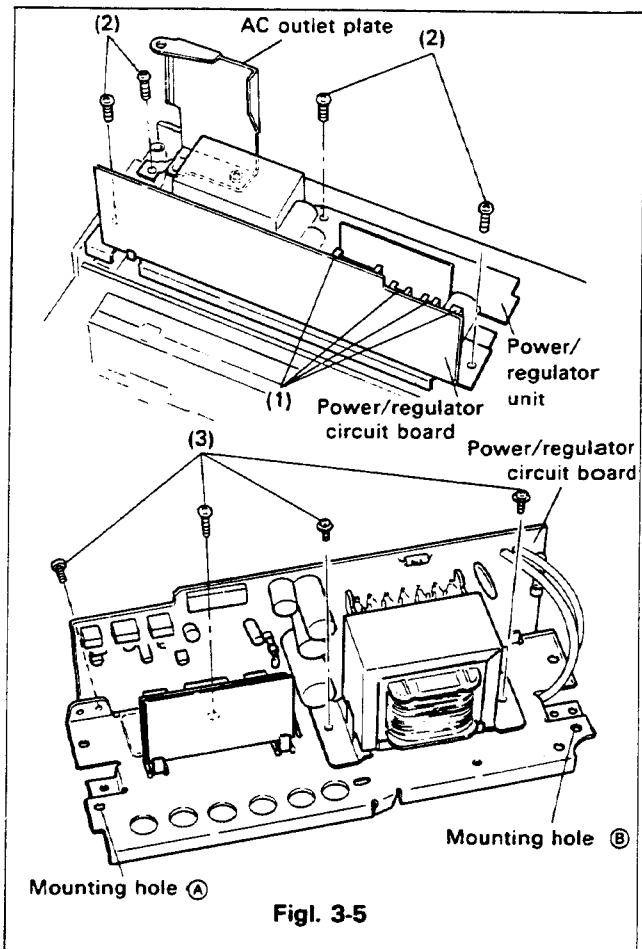
- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (1) from the tuner/IF circuit board.
- (3) Release two tabs (2).
- (4) Lift and tilt the tuner/IF circuit board toward the rear panel.
- (5) Disconnect the 75-ohm VHF cable (3).
- (6) Disconnect three wire connectors (4).



Note: To install the circuit board, align the circuit board-mounting pins with mounting holes (A) and (B).

3-5. POWER/REGULATOR CIRCUIT BOARD (Figure 3-5)

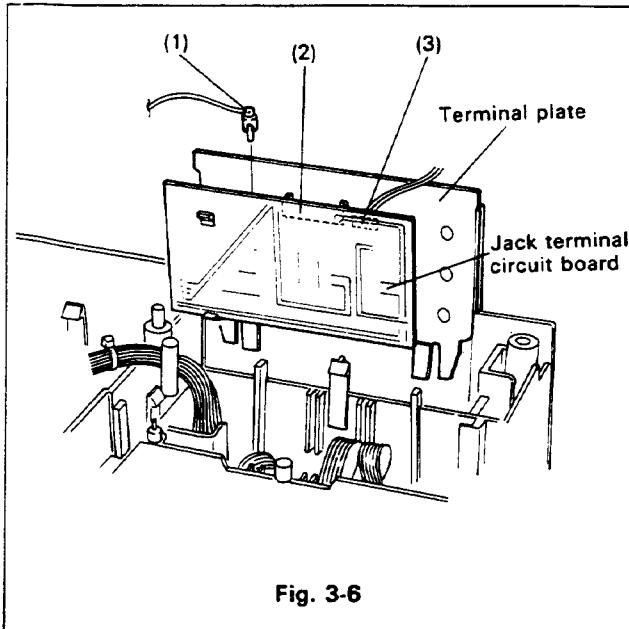
- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Remove the tuner/IF circuit board. (Refer to Item 3-4.)
- (4) Disconnect four wire connectors (1) from the power/regulator circuit board.
- (5) Remove four screws (2).
- (6) Lift the power/regulator unit together with the AC outlet plate to remove.
- (7) Remove four screws (3) to release the power/regulator circuit board from the base.



Note: To install the power/regulator unit, align the mounting pins with mounting holes (A) and (B).

3-6. JACK TERMINAL CIRCUIT BOARD (Figure 3-6)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Disconnect the 75-ohm cable (1).
- (3) Disconnect wire connector (2).
- (4) Pull the terminal plate up and remove the jack terminal circuit board.
- (5) Disconnect wire connector (3).

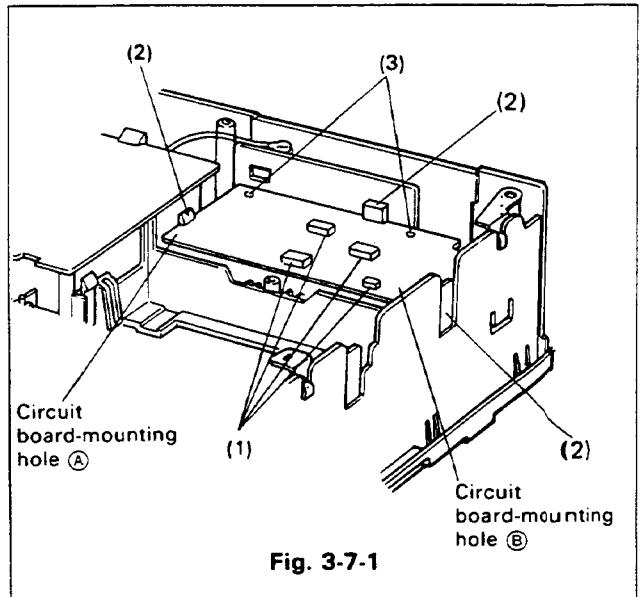


Notes:

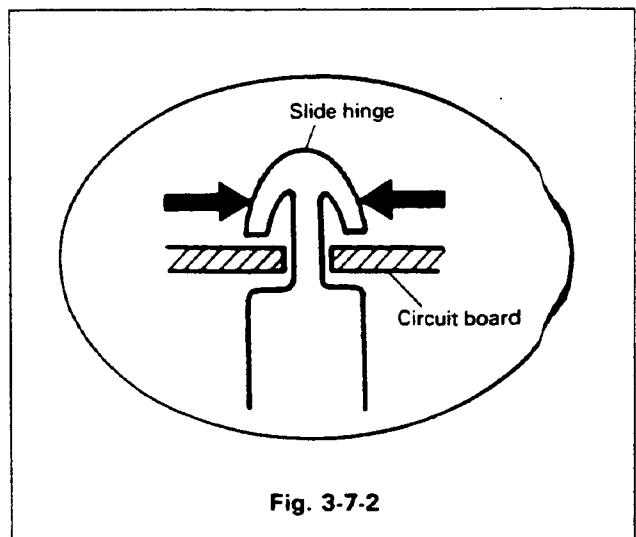
1. The jack terminal circuit board is united with the terminal plate.
2. To install the jack terminal unit, fit the terminal plate into the mounting position until it clicks in the locked position.

3-7. AUDIO CIRCUIT BOARD (Figure 3-7-1)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Disconnect four wire connectors (1) from the audio circuit board.
- (3) Release three tabs (2).
- (4) Release the circuit board from two slide hinges (3).



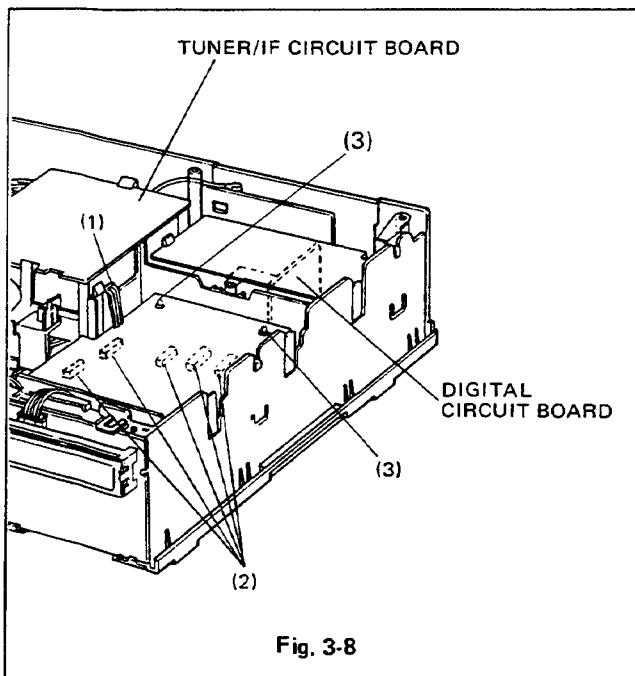
To install the circuit board, align the circuit board-mounting pins with mounting holes Ⓐ and Ⓑ.



Note: When removing the circuit board from each slide hinge, use pliers to squeeze these hinges in the directions of the arrows shown in the figure to release.

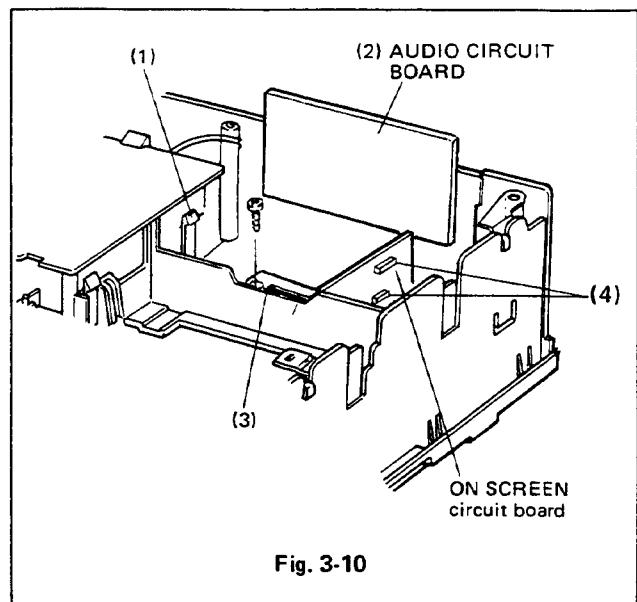
3-8. DIGITAL CIRCUIT BOARD (Figure 3-8)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Release five tabs (1).
- (3) Disconnect five wire connectors (2) from the digital circuit board.
- (4) Release the circuit board from two hinges (3).



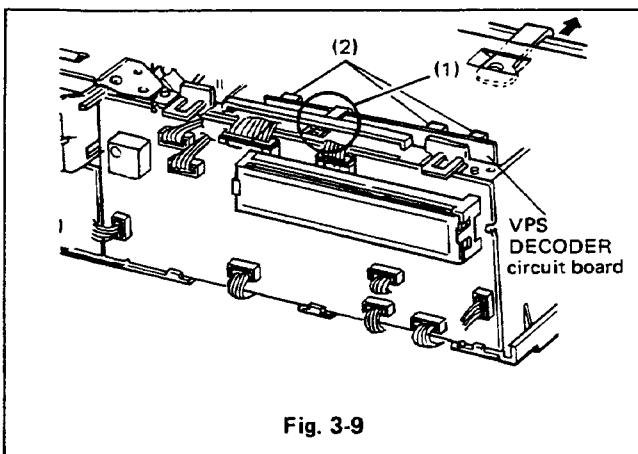
3-10. ON SCREEN CIRCUIT BOARD (Figure 3-10)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Release the three tabs (1) on the audio circuit board.
- (3) Raise slide hinge (2) for the audio circuit board until the board is upright.
- (4) Remove the screw from clamp (3) for the on-screen circuit board.
- (5) Disconnect two wire connectors (4).



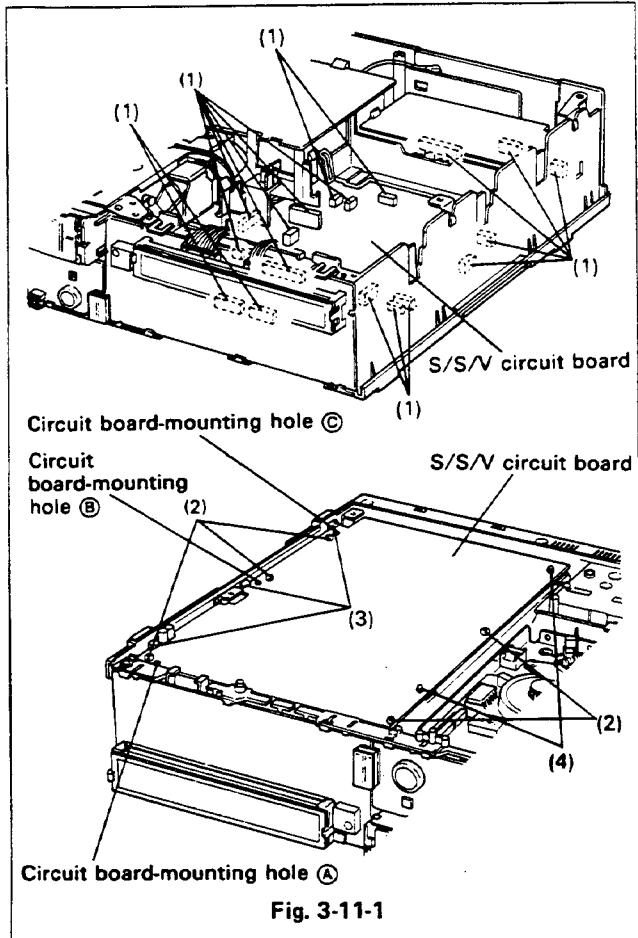
3-9. VPS DECODER CIRCUIT BOARD (Figure 3-9)

- (1) Remove the top cover. (Refer to Item H.)
- (2) Remove pwb bracket (1) in the arrow direction.
- (3) Disconnect the three connectors (2) on the VPS decoder circuit board.

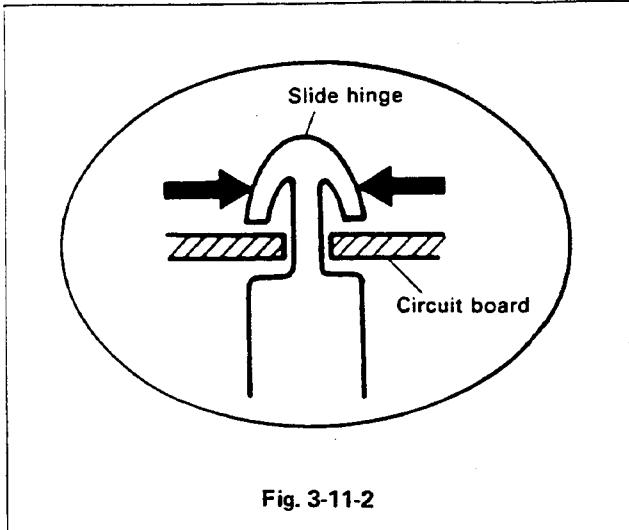


3-11. S/S/V CIRCUIT BOARD (Figure 3-11-1)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Perform steps (2) and (3) in the Item 3-7, and raise the audio circuit board toward the rear panel.
- (4) Disconnect seventeen wire connectors (1) from the S/S/V circuit board from inside the VCR.
- (5) Remove five screws (2) from the S/S/V circuit board.
- (6) Release three tabs (3).
- (7) Release the circuit board from the two slide hinges (4).



To install the circuit board, align the circuit board-mounting pins with mounting holes **Ⓐ**, **Ⓑ** and **Ⓒ**.



Note: When removing the circuit board from each slide hinge, use pliers to squeeze these hinges in the directions of the arrows shown in the figure to release.

4. REMOVING THE CASSETTE MECHANISM

4-1. REMOVING THE CASSETTE HOUSING ASSEMBLY (Figures 4-1-1, 4-1-2)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Remove two screws (1). Pull up the rear part of the cassette housing assembly and pull backwards 4.5 mm carefully to release the claw of the front side of the cassette housing assembly from the chassis. Then carefully pull it out upwards.
- (3) Disconnect connector (2).
- (4) To remove the cassette loading circuit board, release four tabs (3).

Note: The removed screws should be used again to reinstall the cassette housing assembly. Never use screws other than the ones originally removed.

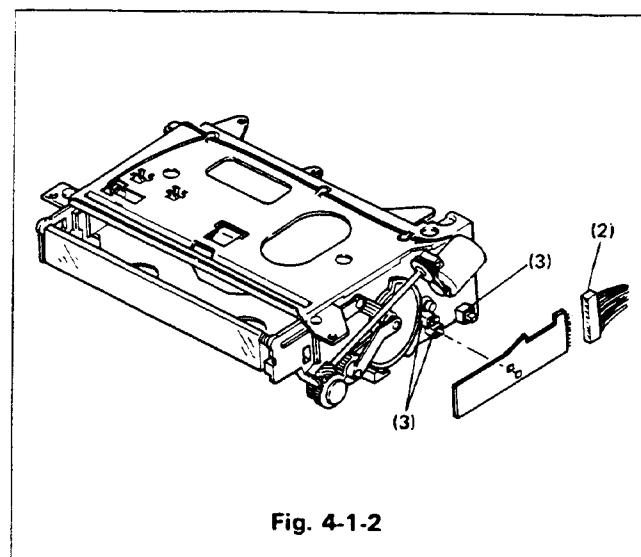
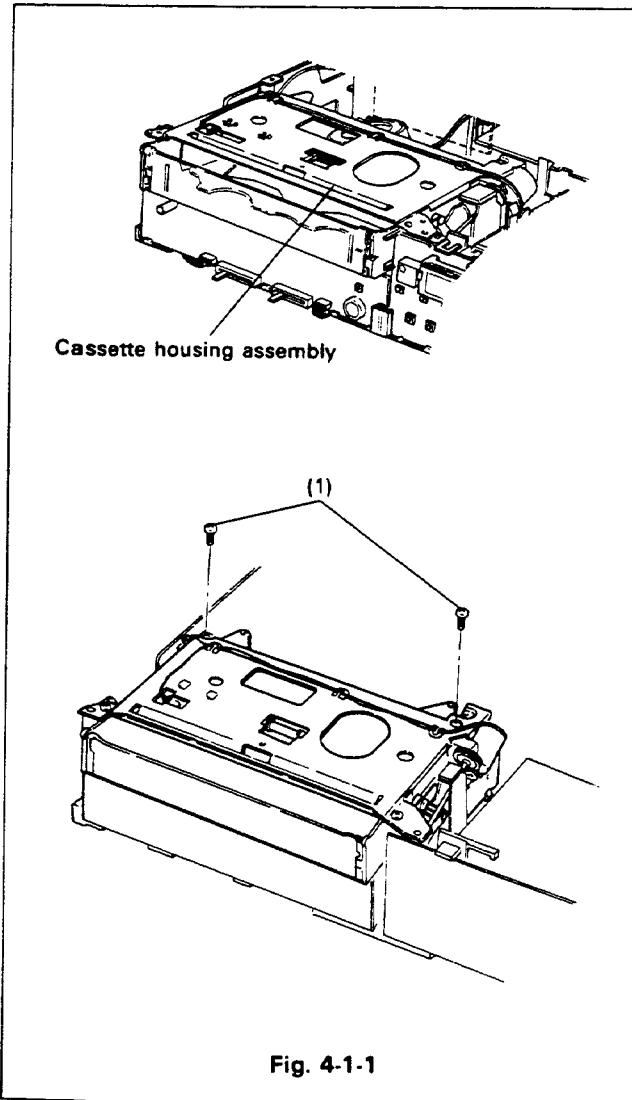
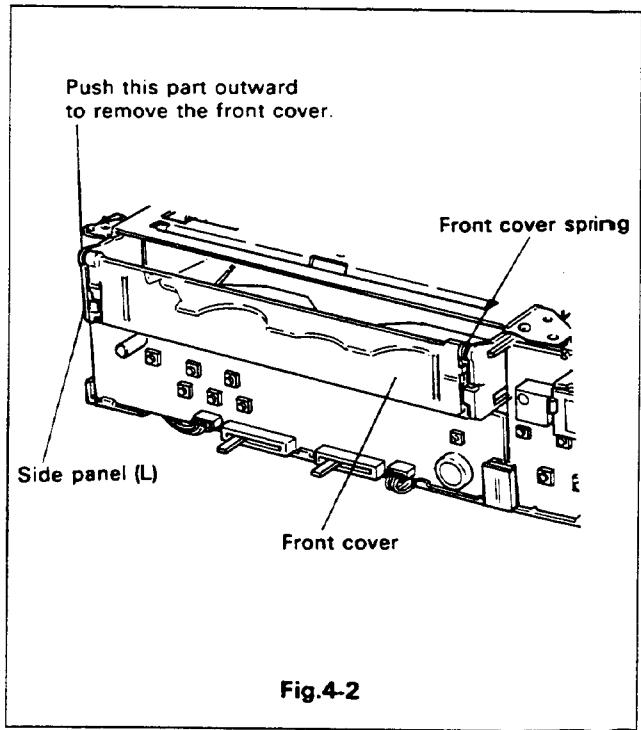


Fig. 4-1-2

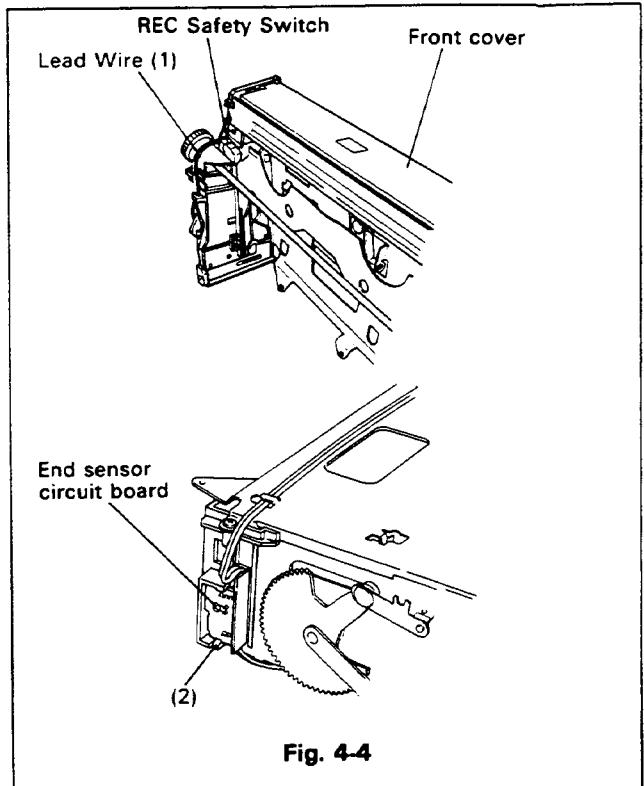
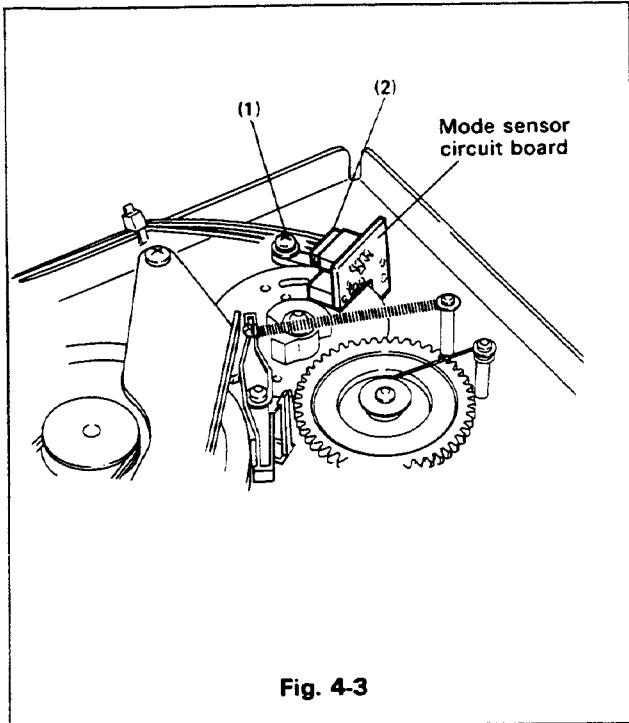
4-2. FRONT COVER (Figure 4-2)

- (1) Push the front cover into the cassette housing.
- (2) Push the side panel (L) outward, and remove the front cover, together with the front cover spring.



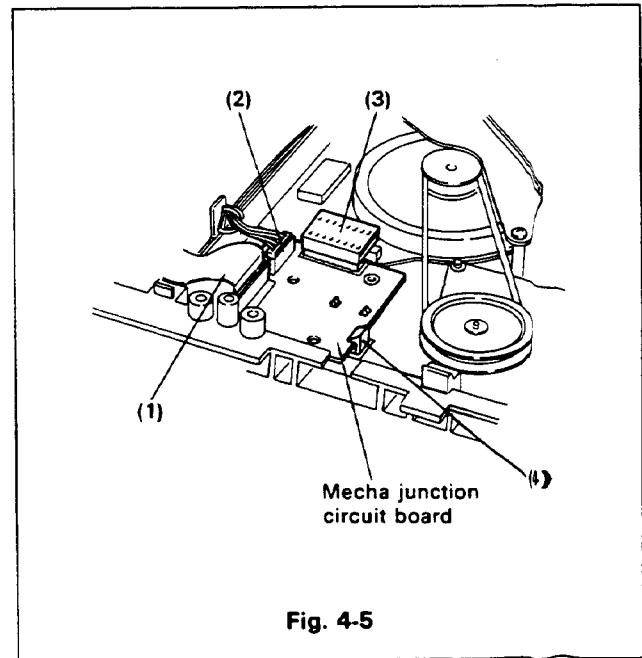
4-3. MODE SENSOR CIRCUIT BOARD (Figure 4-3)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Remove screw (1).
- (3) Disconnect wire connector (2) to remove the mode sensor circuit board.



4-5. MECHA JUNCTION CIRCUIT BOARD (Figure 4-5)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Disconnect flat cable (1).
- (3) Disconnect connector (2) and junction (3).
- (4) Release tabs (4) and lift the circuit board a little to remove.

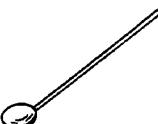
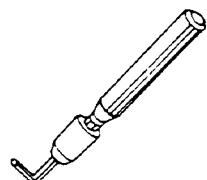
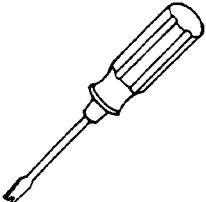
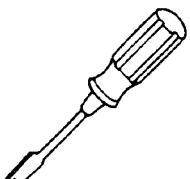
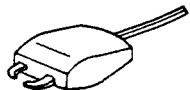
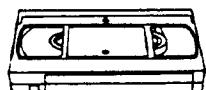
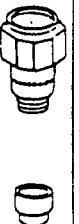
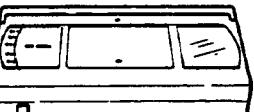
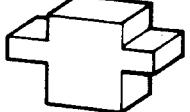
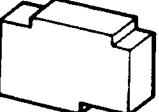
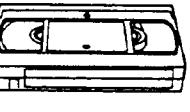


SECTION 3

ADJUSTMENT

1. MECHANICAL ADJUSTMENT

1-1. SERVICING JIGS AND TOOLS

J-1 Checking mirror For tape flow check and adjustment procedures  16950871	J-2 Hexagonal driver For guide roller screw  16951281	J-3 Adjustment driver For guide roller  16951291	J-4 Adjustment driver For tapered pin of ACE head  16951301
J-5 Box driver For ACE head, guide pole and reverse pin  16951311	J-6 Alignment tape (MH-2) Overall adjusting of picture quality and tracking MH-2 79V20196 	J-7 Cleaning liquid (isopropyl alcohol) cleaning cloth for cleaning 	J-8 Head demagnetizer demagnetizing audio heads 
J-9 Cleaning cassette tape For cleaning video heads  NOTE*	J-10 ● Torque meter (600g/cm) Ass'y 79V20199 ● Torque meter 79V20200 (600g/cm) ● Torque meter adaptor 79V21508 (Substitute 79V20201) 	J-11 Back tension cassette gauge 79V20202 	J-12 Height Gauge AM-2 Jig  16951431
J-13 Master Plane B Jig  16951381	J-14 Height Gauge BM-2 Jig  16951441	J-15 Cassette tape (E-120) For checking tape path  NOTE*	

Note: This item not available from parts dept.

Fig. 1-1

1-2. MECHANISM ASSEMBLY

1-2-1 Removing the mechanism assembly

(Figure 1-2)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Remove the tuner/IF circuit board. (Refer to Item 3-4.)
- (3) Remove the preamp circuit board. (Refer to Item 3-3.)
- (4) Remove the cassette housing assembly. (Refer to Item 4-1.)

Note: The removed screws should be used again to reinstall the cassette housing assembly. Never use screws other than removed ones.

- (5) Disconnect wire connector and drum heater (yellow) of the rotary drum assembly.
- (6) Remove two screws of the lead wires with ground lug.
- (7) Disconnect two connectors from the ACE head assembly.
- (8) Disconnect connectors from the full erase head.
- (9) Disconnect the flat cable from the mecha junction circuit board.

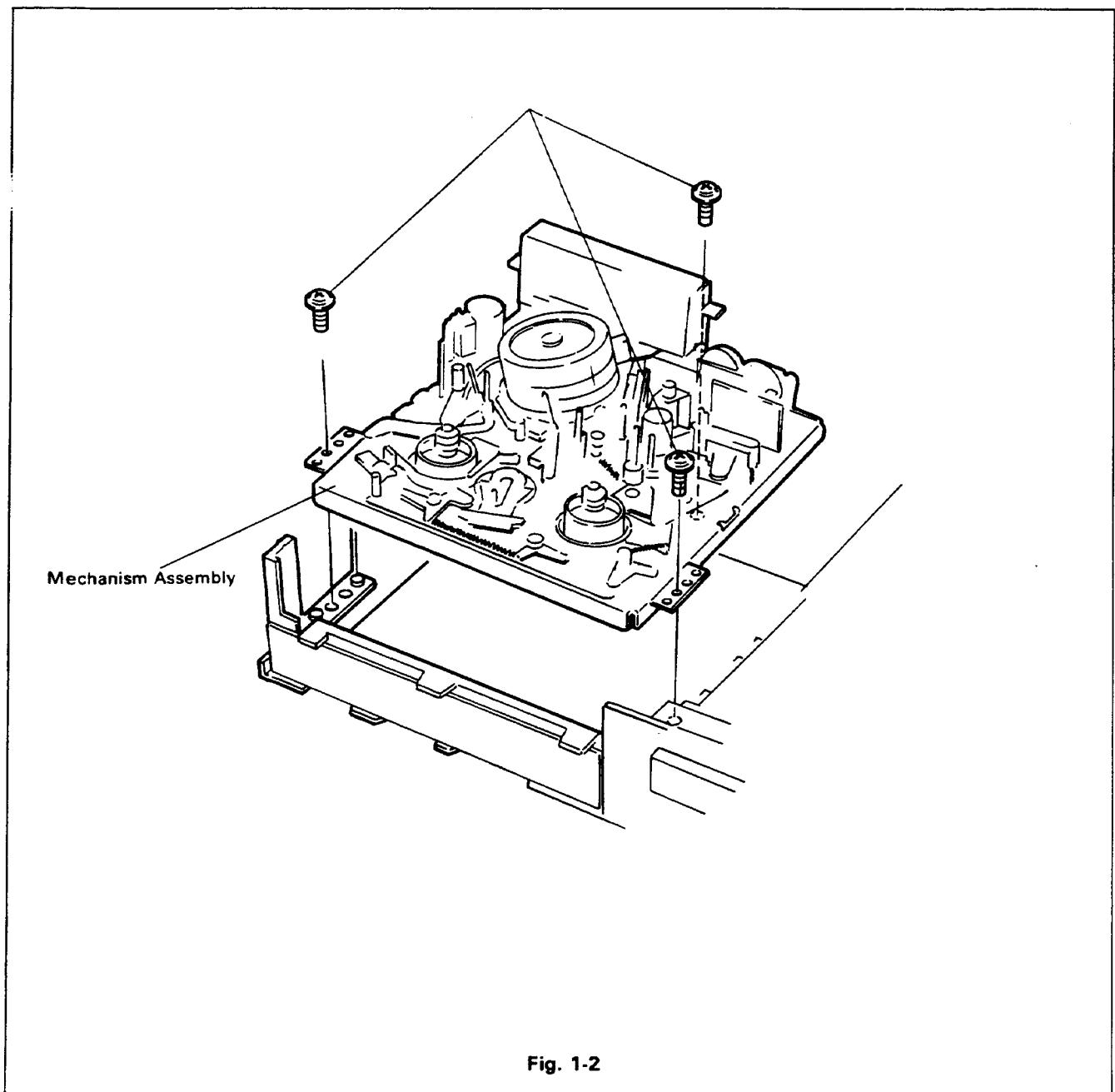
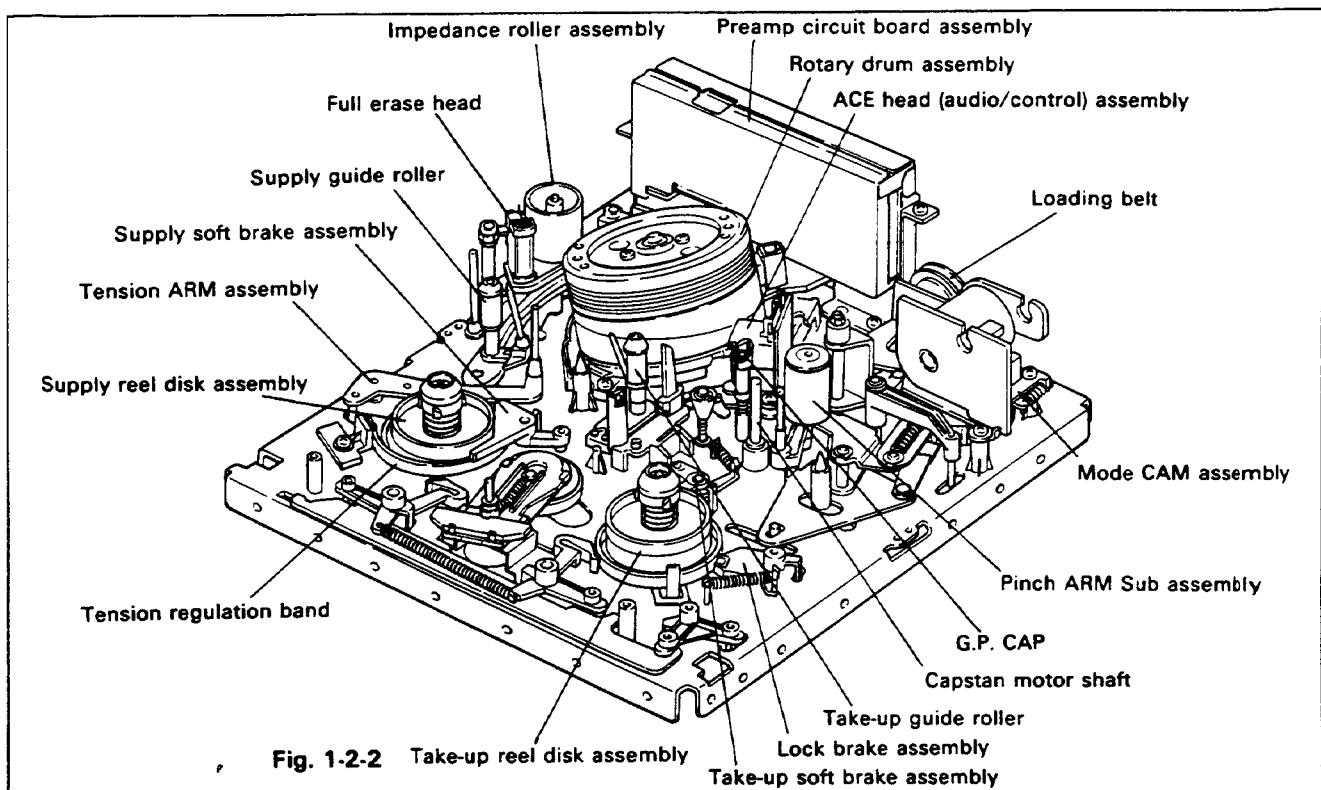


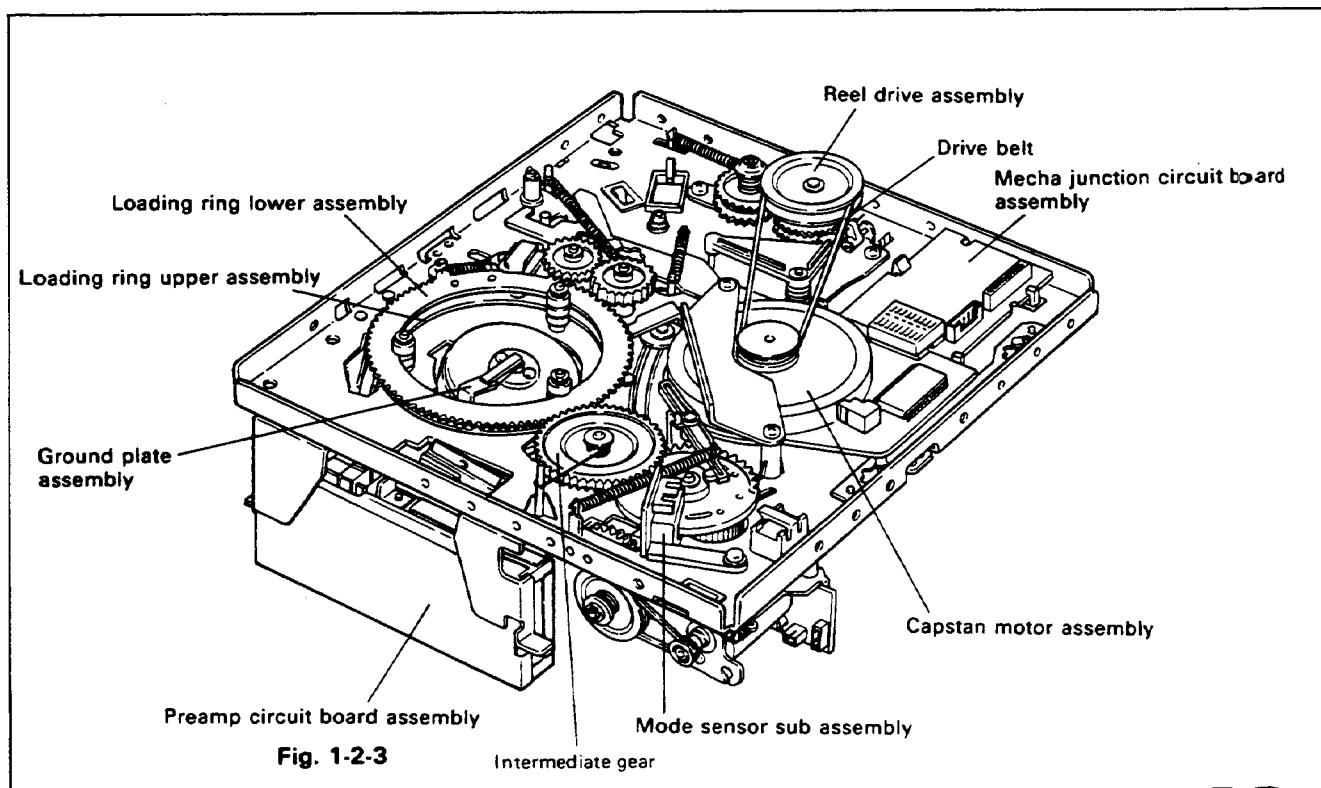
Fig. 1-2

1-2-2 Mechanism parts locations

Top view



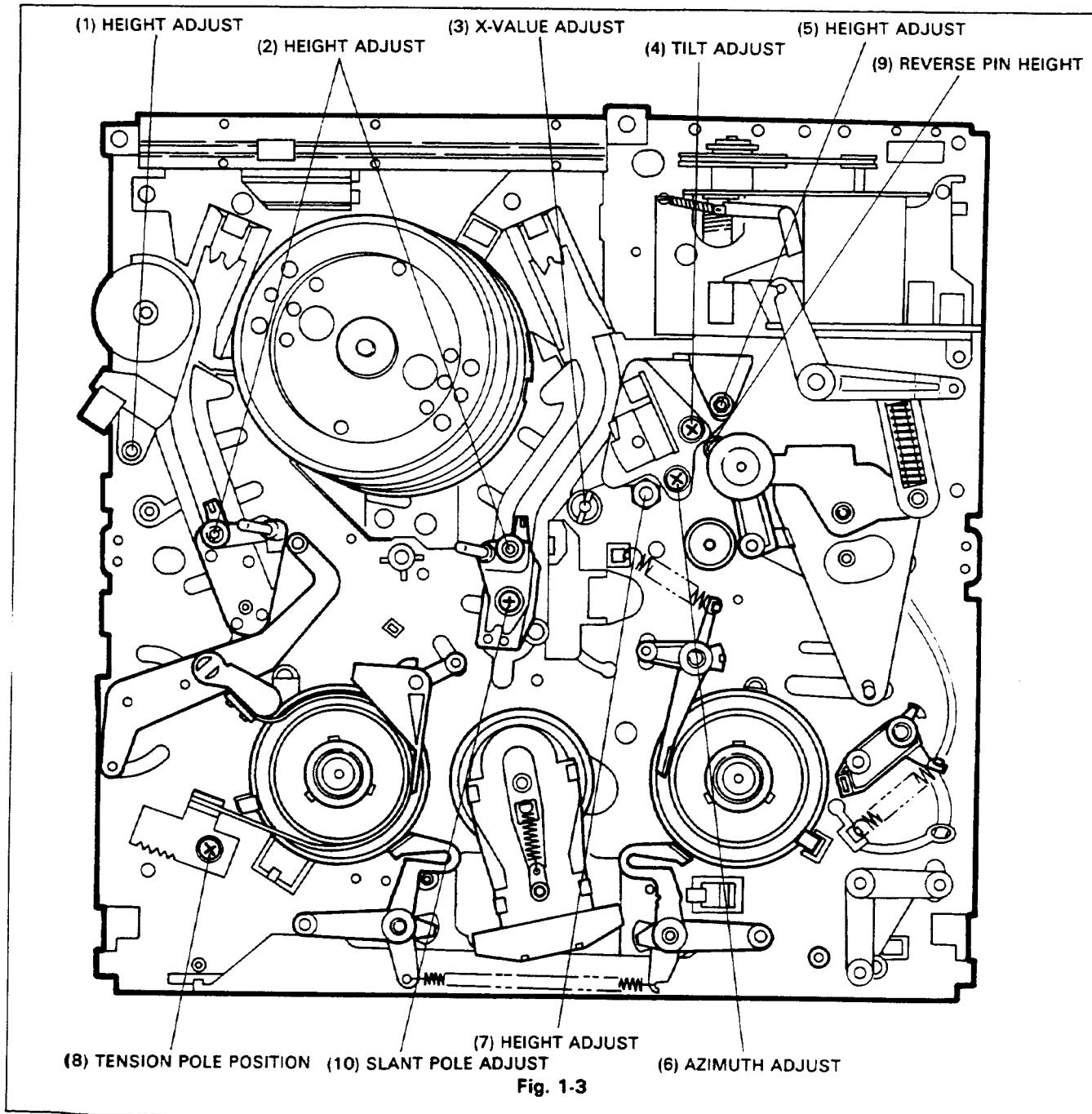
Bottom view



1-3. BEFORE DISASSEMBLING PARTS ON THE CHASSIS (Figure 1-3)

Do not turn the adjusting screws shown below when removing adjacent parts.

- (1) Supply guide pole height adjusting nut.
- (2) Take-up/supply guide roller height adjusting screw.
- (3) ACE Head X value adjusting nut.
- (4) ACE Head tilt adjusting screw.
- (5) ACE Head height adjusting nut.
- (6) ACE Head azimuth adjusting screw.
- (7) Take-up guide pole height adjusting nut (cap per).
- (8) Tension band fixing screw.
- (9) Reverse pin height adjusting nut.
- (10) Slant pole adjusting screw.



Note: When replacing parts and removing the nylon nut for adjustment, be sure to use the removed nylon nut.

1-4. BEFORE ADJUSTING THE MECHANISM (Figure 1-4)

"Adjustment procedures" have been written as a guide to achieve proper operation after replacing the mechanism parts (when required by normal wear and tear or accidental damage).

Since the mechanism adjustment procedures are closely related to the adjustment of the electrical circuitry, and form the basis of the electrical circuitry adjustment procedures, carefully follow the mechanism procedures by observing the proper precautions.

Cassette housing lamp

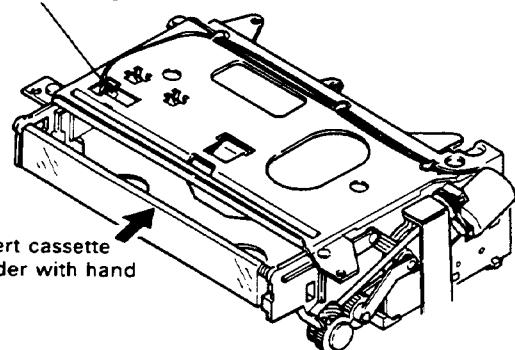


Fig. 1-4

1-5. SERVICING PRECAUTIONS (Figure 1-5)

- (1) Pay special attention to how and where the unit is placed when removing the exterior casing of the unit, and when servicing with the circuit boards removed.
- (2) Prevent the loss of screws by putting every removed screws into a container stored at one location.
- (3) Since the surface area of the left and right sides of the unit is small, take special precautions when working with the unit standing on its side so that it will not fall over.
- (3) When operating without using a cassette, short TP101 and TP102 on the S/S/V circuit board shown in Fig. 1-5 with a clip.

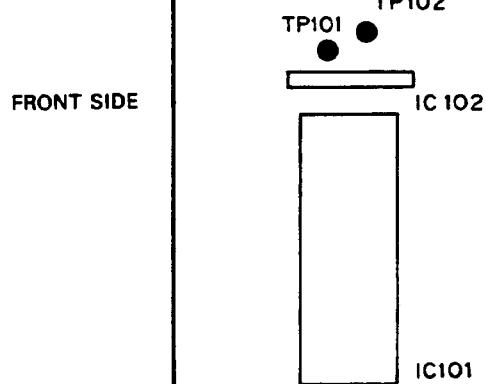


Fig. 1-5

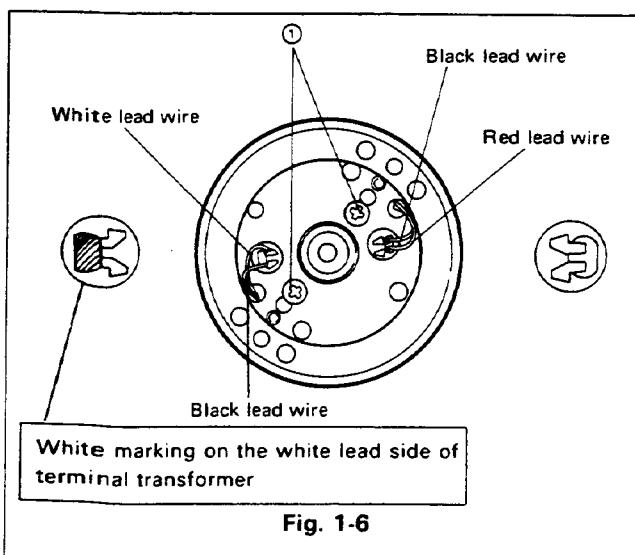
1-6. REPLACEMENT OF UPPER ROTATING DRUM ASSEMBLY (Figure 1-6)

- (1) Remove the solder from the four lead wires that connect the video heads to the terminal transformer. (Perform this removal quickly so as not to damage the insulation of the lead wires.)
- (2) Remove two screws ①, then lift the rotating drum assembly upward and remove it.
- (3) Use alcohol (isopropyl) to clean the flange surface of the lower drum and the surface on the new rotating drum assembly that will come into contact with the flange. Position the rotating drum assembly so that the wire is aligned with the white marking on the shaded area of the terminal transformer, as shown in Fig. 1-6, then carefully slide it down into place.

Note:

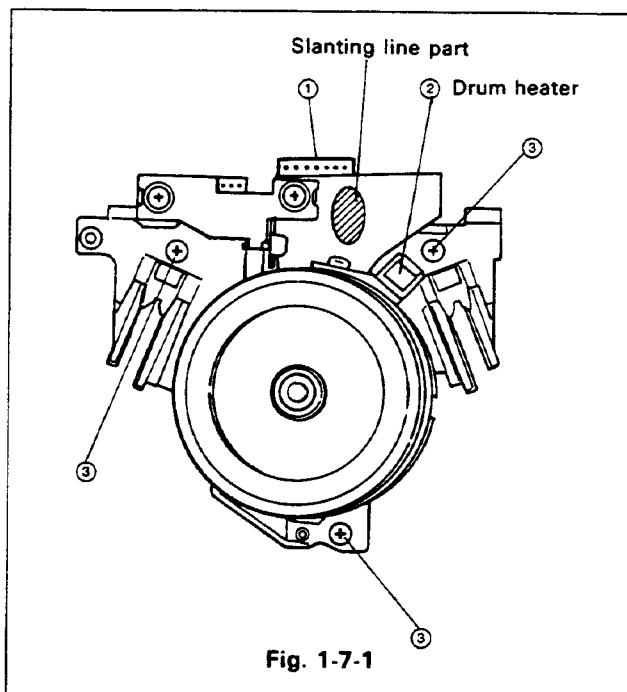
- 1) Be sure not to touch the head tips, or strike and damage them.
- 2) If the rotating drum assembly should become hooked on some obstruction before it has been slid completely into place, do not attempt to force it. Remove it and try again.

- (4) Tighten two screws ① alternately, then solder the four lead wires to their correct positions on the terminal transformer, and make sure that all connections are solid and secure.
- (5) After the rotating drum assembly has been replaced, be sure to carry out the following checks and adjustments.
 - 1) Control head phase adjustment (refer to Section 3-4)
 - 2) Playback switching point adjustment (refer to Section 3-1).
 - 3) Checking and adjustment of entire video and audio systems (refer to Sections 4-2, 4-3 and 4-5).



1-7. REPLACEMENT OF DRUM ASSEMBLY (Figure 1-7)

- (1) Remove the preamp circuit assembly. (Refer to Item 3-3.)
 - (2) Remove the drum assembly connector ① and drum heater ②. (When removing connector ① hold down the slanting line part of the print substrate.)
 - (3) Remove the three screws ③ and then remove the drum assembly.
- Note:** Do not touch the drum head tips or damage the drum assembly during this procedure.
- (4) Follow the above instructions in reverse order to install the drum assembly.



- (5) After replacing, check and adjust as follows.
 - 1) Adjust tape path. (Refer to Section 2.)
 - 2) Adjust for compatibility. (Refer to Section 3.)
 - 3) Make necessary adjustments to the servo system, video system, and audio system. (Refer to Sections 4-2, 4-3 and 4-5.)

NOTE

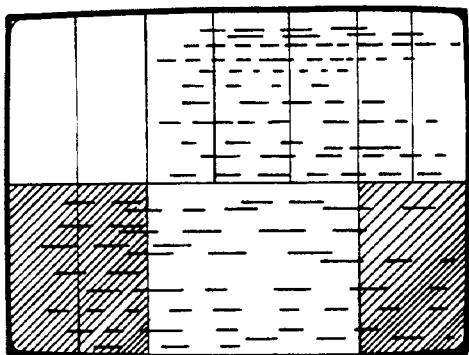
The following items must be checked after replacing the drum assembly.

When you have replaced the drum assembly of the unit that do not have the capacitor *C654 0.022μF on the PWB S/S/V or S/S/A/V, make sure whether there is a phenomenon described as follows. (Refer to the illustration below.)

In some cases, the noise with colored dots appears on the entire picture screen as shown in the illustration. In this case add a ceramic capacitor 0.022μF between the pin (3) and pin (4) of the drum motor connector CN604 on the PWB S/S/V or S/S/A/V.

The exactly same phenomenon may possibly appear when you have replaced the PWB S/S/V or S/S/A/V, cure it in the same manner as above.

*Note: C654 is the capacitor connected between the pins (3) and (4) of the connector CN604 on the PWB S/S/V or S/S/A/V.



(6) Handling of Service Drum Package

Remove the drum from the inner box as shown in the figure below. Remove the three black screws from inside of the box, remove the board, and then remove the drum assembly.

Note:

The drum assembly is precisely adjusted. Handle carefully to prevent it from becoming dirty, scratched, damaged or deformed in any way.

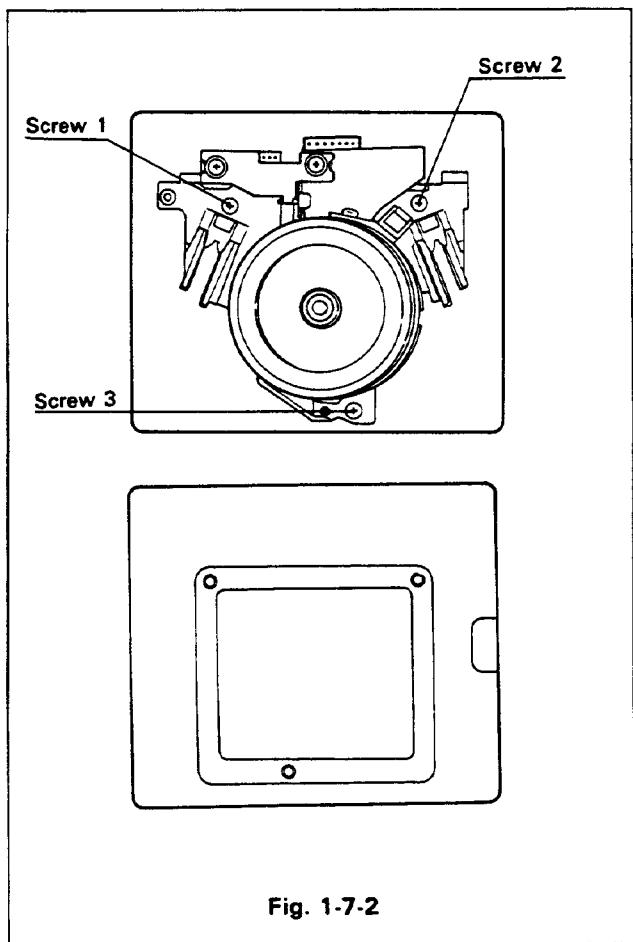


Fig. 1-7-2

1-8. REPLACEMENT OF GROUND PLATE (Figure 1-8)

1. After first placing the unit on its side, open the bottom of the unit and remove the screw ①.
2. Use the screw ① to attach the ground plate so that its contact area is aligned with the center of the drum assembly shaft.

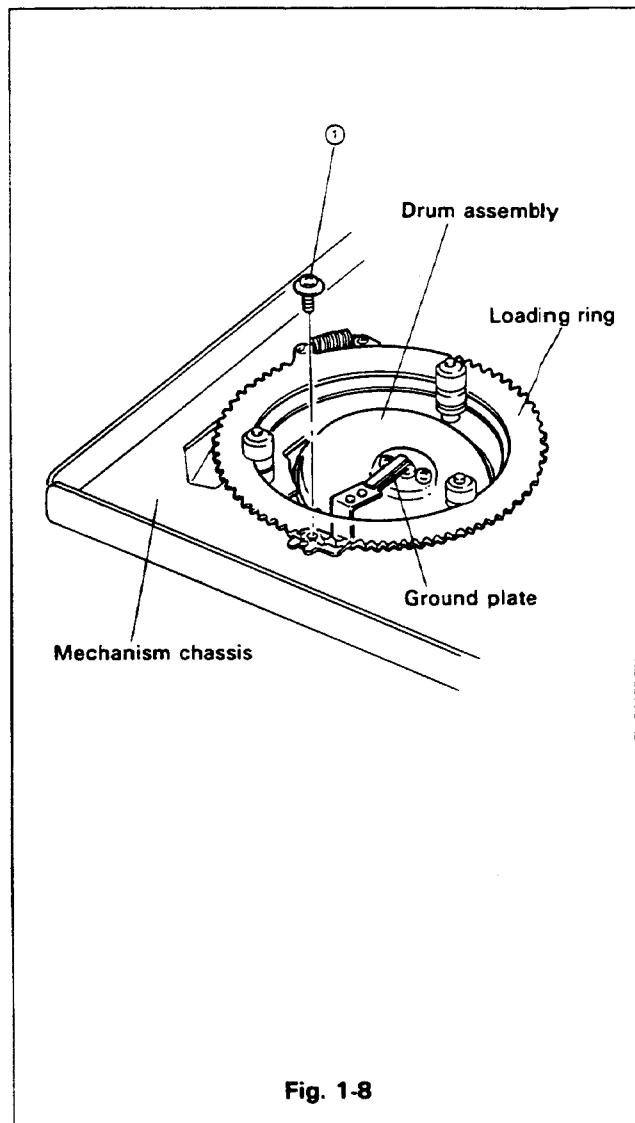


Fig. 1-8

1-9. AUDIO/CONTROL HEAD

(Figure 1-9)

- (1) Remove connectors ① and ② from the ACE head circuit board. (Remove wires from clamper ① first.)
- (2) Use a box driver (J-5) to remove nylon nut ②.
- (3) Rotate the ACE head assembly clockwise, so that it is slightly away from the taper pin, then pull upwards from the head pivot. Be careful during this procedure, because the (TC) spring applies pressure to the assembly.
- (4) Replace the ACE head assembly and mount it into position by following the above procedure in reverse.
- (5) After the ACE head assembly has been replaced, adjust the height of the new ACE head assembly.
- (6) To adjust the height of the ACE Head, first place the Master Plane B Jig (J-13) on the chassis. Place the Height Gauge BM-2 Jig (J-14) on J-13 with the surface marked with an "H" facing up, and use the nylon nut box driver (J-5) to adjust to the same height as part A. Also, adjust the height of the tapered pin by following the same procedure as for the ACE Head. Use adjustment driver (J-4) to adjust to the same height as part B.

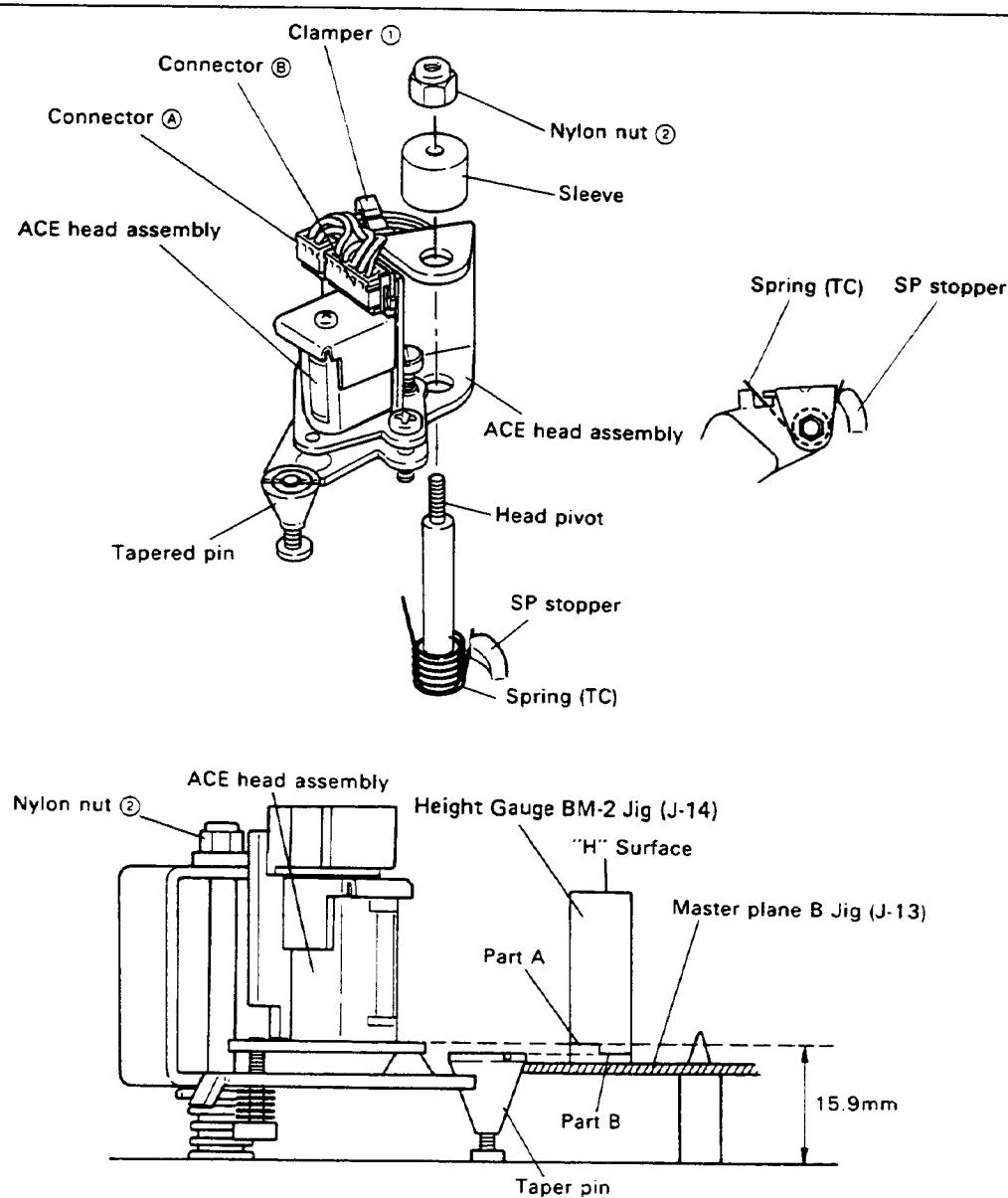


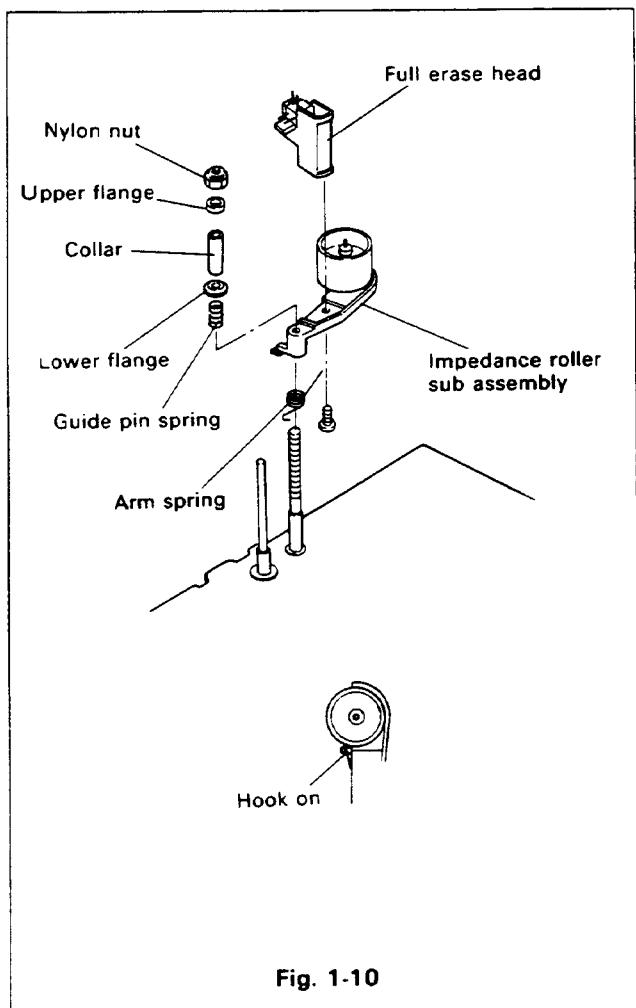
Fig. 1-9

1-10. FULL ERASE HEAD (Figure 1-10)

- (1) Remove the connector from the full erase head.
- (2) First remove the nylon nut, then remove the upper flange, collar, lower flange, guide pin spring, and arm spring.
- (3) Remove the impedance roller Sub assembly upwards.
- (4) Remove the screw that secures the full erase head from underneath the impedance roller arm. Then remove the full erase head itself.
- (5) Replace the full erase head and mount it into position, following the above procedure in reverse.

1-11. IMPEDANCE ROLLER SUB ASSEMBLY (Figure 1-10)

- (1) Remove the nylon nut, the upper flange, collar, lower flange, guide pin spring, and arm spring.
- (2) Remove the impedance roller Sub assembly upwards.
- (3) Replace the impedance roller Sub assembly and mount it into position by following the above procedure in reverse.

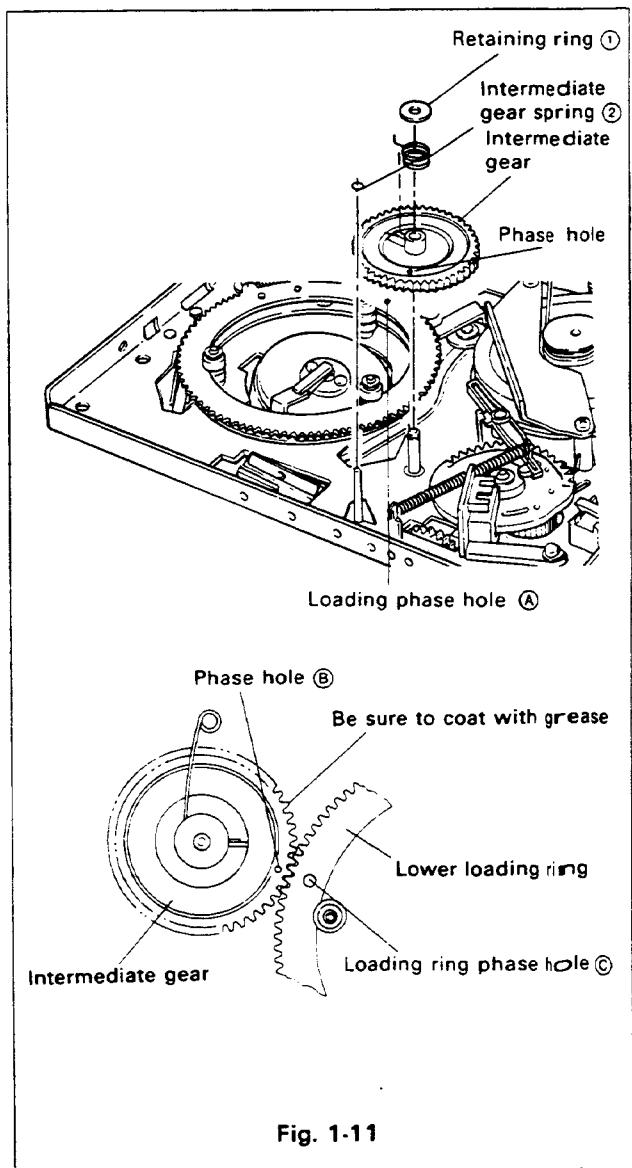


1-12. INTERMEDIATE GEAR (Figure 1-11)

- (1) Remove the retaining ring ①. Then remove intermediate gear spring ②.
- (2) Remove the intermediate gear upwards.
- (3) Replace intermediate gear and mount it into position by following the above procedure in reverse.

Notes:

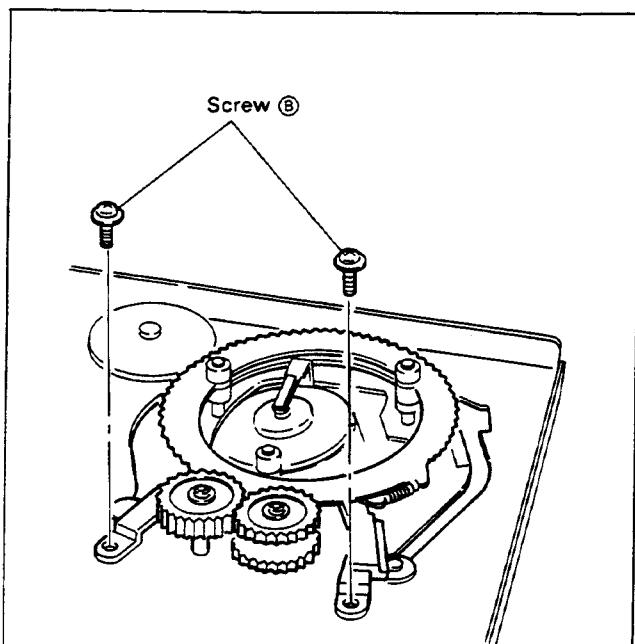
1. As shown in Fig. 1-11, when loading phase holes Ⓐ of the upper and lower loading rings are aligned, attach intermediate gear so that the phase hole Ⓑ of intermediate gear and phase hole Ⓒ of the loading ring are facing each other, as shown in Fig. 1-11.
2. Be sure that intermediate gear spring ② is firmly secured to the lock of the intermediate gear.



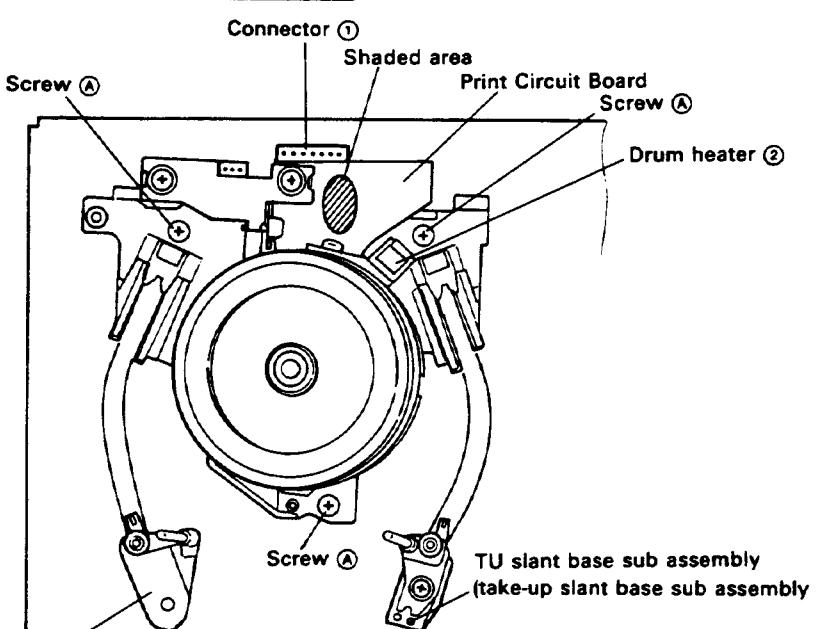
1-13. S SLANT BASE/TU SLANT BASE SUB ASSEMBLY (Figure 1-12)

- (1) Remove the preamp circuit board assembly (Refer to Item 3-3 of Section 2.)
- (2) Remove connector ① of the drum assembly and drum heater ②. (Press the shaded area down with your fingers when replacing connector ① so as not to damage the printed circuit board. When attaching connector ①, be sure to support underneath the circuit board with your fingers.)
- (3) Remove the three screws Ⓐ of the drum assembly, then remove the drum assembly upwards. (Be sure not to damage the head tips during this procedure).
- (4) Remove the two screws Ⓑ, from the reverse side of the chassis.
- (5) Slide and remove the S slant base Sub assembly from the chassis.
- (6) Replace the S slant base Sub assembly and mount it into position by following the above procedure in reverse.

Note: The procedure for replacing the TU slant base Sub assembly is the same as that for removing the S slant base Sub assembly.



Reverse Side of Chassis



S slant base sub assembly
(supply slant base sub assembly)

Fig. 1-12

Chassis Upper Surface

1-14. ENTIRE MODE CAM ASSEMBLY (Figure 1-13, 1-14)

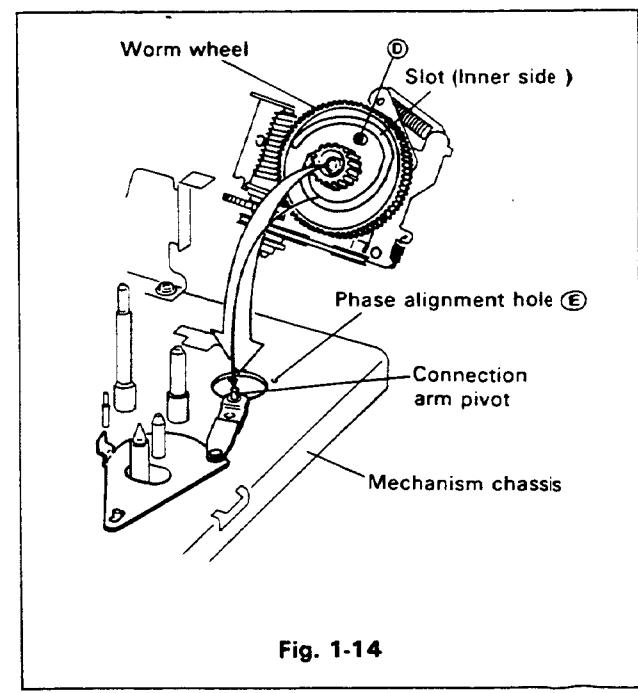
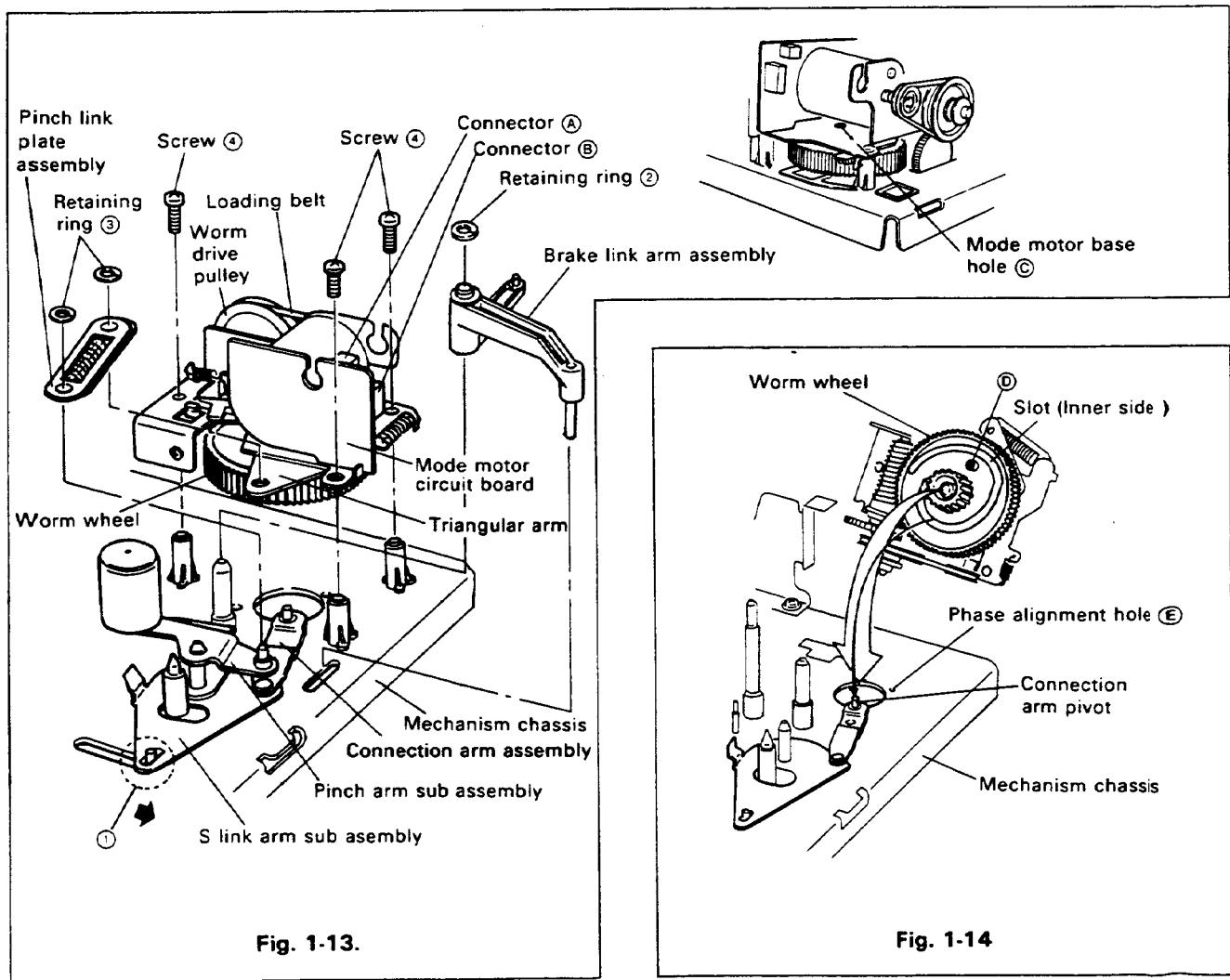
- (1) Remove the loading belt of the entire mode cam assembly. Rotate the worm drive pulley by hand so that the ① part of the S link arm assembly comes as far to the right as possible as shown in Fig. 1-13. (This position is the same as for the FF or the REW mode.) Remove connectors Ⓐ and Ⓑ of the mode motor circuit board. Next, remove the wires going through the groove of the circuit board. (During this procedure, be sure to remove the connectors of the ACE head first.)
- (3) Remove retaining ring ②, and then remove the brake link arm assembly.
- (4) Remove retaining rings ③, then remove the pinch link plate assembly.

(5) Remove three screws ④, then remove the entire mode cam assembly upwards.

(6) Replace the entire mode cam assembly and mount it into position by following the above procedure in reverse.

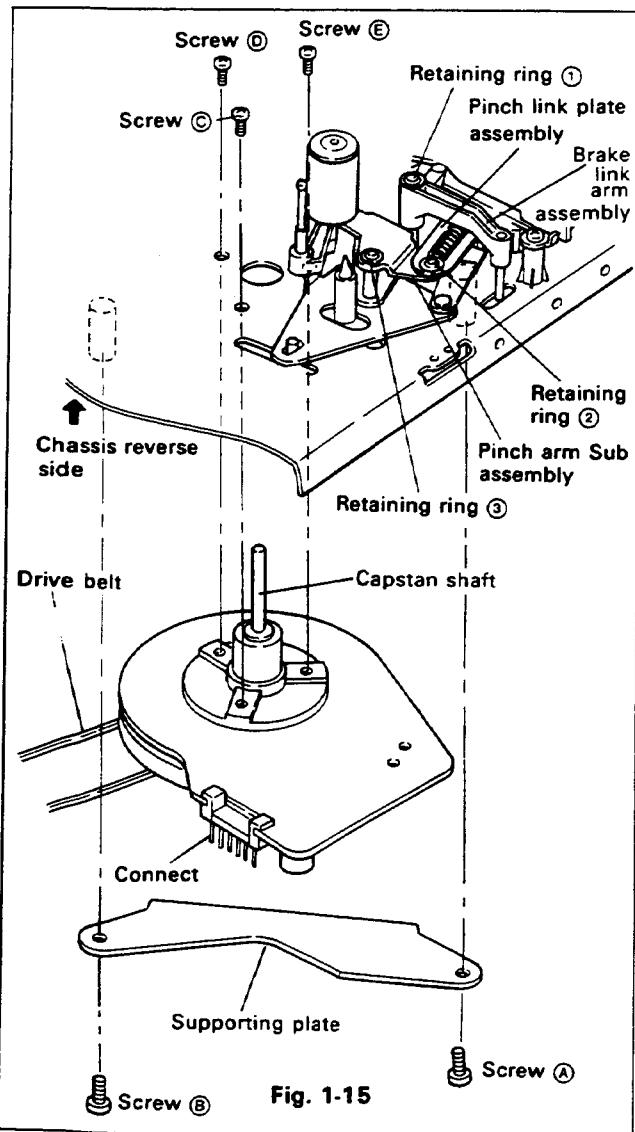
Notes:

1. When attaching the mode motor assembly on the chassis, first align the mode motor worm wheel hole ⑤ with the mode motor base hole ⑥ by rotating the worm drive pulley.
2. Attach the mode motor assembly so that the ① part of the S link arm assembly comes as far to the right as possible. At this time, be sure to confirm that the hole ⑦ on the chassis, and holes ⑧ and ⑨ described above are in alignment.



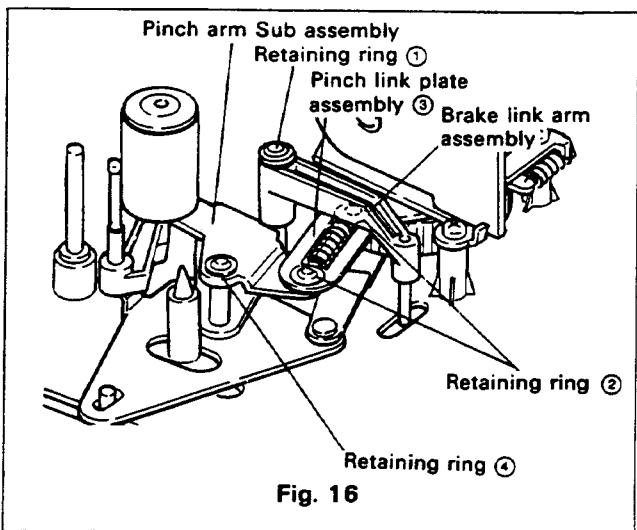
1-15. CAPSTAN MOTOR (Figure 1-15)

- (1) Remove retaining ring ①, and then remove the brake link arm assembly.
- (2) Remove retaining rings ② and ③, then remove the Pinch arm sub assembly upwards.
- (3) View from the reverse side of the chassis, remove screws Ⓐ and Ⓑ, then remove the supporting plate.
- (4) Remove the drive belt, then remove the connector from the capstan motor circuit board. Remove screws Ⓒ, Ⓓ and Ⓔ.
- (5) Remove the capstan motor.
- (6) Replace the capstan motor and mount it into position by following the above procedure in reverse. During this operation, care should be taken not to damage or magnetize the capstan shaft.



1-16. PINCH ARM SUB ASSEMBLY (Figure 1-16)

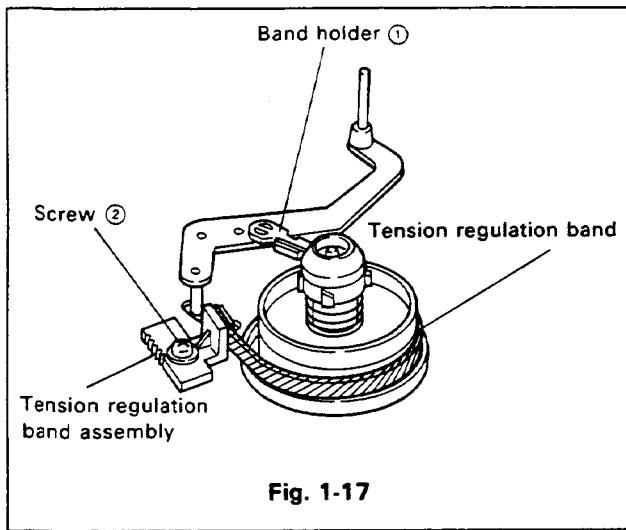
- (1) Remove retaining ring ①, and then remove the brake link arm.
- (2) Remove retaining rings ②, then remove pinch link plate assembly ③.
- (3) Remove retaining ring ④ and then remove the pinch arm Sub assembly upwards.
- (4) Replace the pinch arm Sub assembly and assemble it into position by following the above procedure in reverse.



1-17. TENSION REGULATION BAND ASSEMBLY (Figure 1-17)

- (1) Remove band holder ① of the tension regulation band assembly from the tension regulation arm assembly. Next, remove screw ② and remove the tension regulation band assembly. (Fig. 1-17)
- (2) Exchange the tension regulation band assembly with a new replacement and mount it into position by following the above procedure in reverse.
- (3) Adjust the tension regulation arm assembly according to the following procedure.

CAUTION: Excessive pressure on the lever during band holder replacement could bend it out of shape.

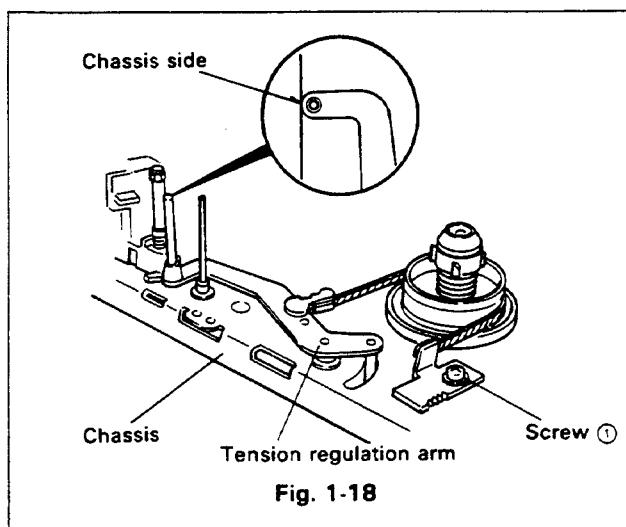


1-18. ADJUSTING THE TENSION REGULATION ARM POSITION (Figure 1-18)

- (1) With the cassette housing removed, activate the play mode.
- (2) Adjust screw (1) so that the left end of the tension regulation arm comes in alignment with the chassis side, secure it firmly as shown in Fig. 1-18.

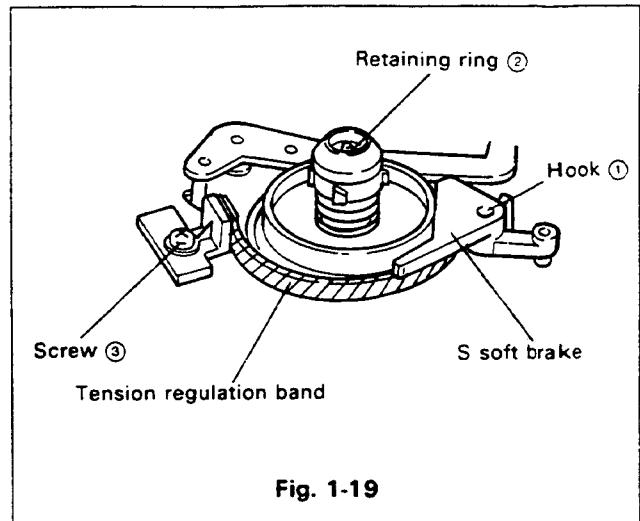
Note:

If back tension is incorrect, check the tension pole position. Use the back tension cassette gauge and confirm a value of between 17 and 32 gcm. If necessary, replace the tension arm spring or tension band and readjust the tension pole position.



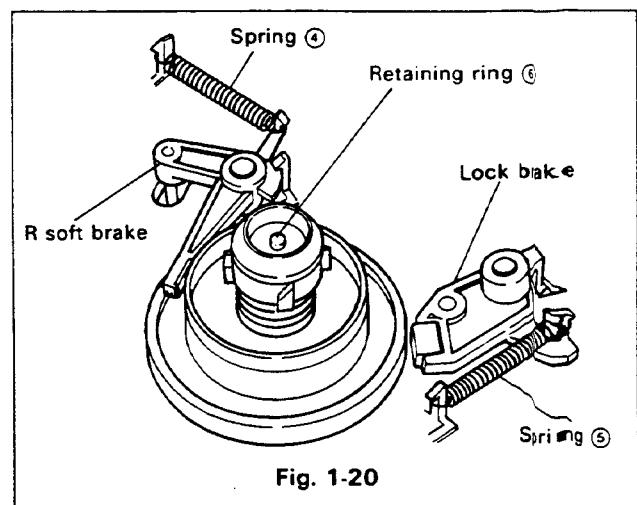
1-19. SUPPLY REEL DISK (Figure 1-19)

- (1) Release the S soft brake upwards from hook (1).
- (2) Remove the retaining ring from the reverse side of the tension regulation arm, then remove screw (3) and tension regulation band.
- (3) Remove retaining ring (2), then remove the supply reel disk.
- (4) Replace the reel disk and mount it into position by following the above procedure in reverse.



1-20. TAKE-UP REEL DISK (Figure 1-20)

- (1) Remove spring (4), then remove the R soft brake upwards.
- (2) Remove spring (5), then remove the lock brake upwards.
- (3) Remove retaining ring (6), then remove the take-up reel disk.
- (4) Replace the reel disk and mount it into position, by following the above procedure in reverse.



1-21. ADJUSTMENTS WHEN REPLACING THE SUPPLY AND TAKE-UP REELS (FIGURE 1-21)

Height adjustment of reel disk (height confirmation of supply and take-up reel disks)

Set the Master Plane B Jig (J-13) on the chassis. (Fig. 1-21-1)

Next, place the Height Gauge BM-2 Jig (J-14) in the positions indicated by the two arrows in Fig. 1-21-1. Slide as shown in Fig. 1-21-2, and verify that the upper surface of the reel disk slides over the A surface of the Height Gauge BM-2 Jig (J-14) and not over the B surface of the Height Gauge BM-2 Jig (J-14).

Note: When checking the height of the supply reel disk, place the Master Plane B Jig (J-13) so that the "S" mark of the Height Gauge BM-2 Jig (J-14) faces upwards.

When checking the height of the take-up reel disk, place the Master Plane B Jig (J-13) so that the "TU, R" mark of the Height Gauge BM-2 Jig (J-14) faces upwards.

If reel disk is outside this range, use polyester washers to make the required adjustments (Fig. 1-21-3).

Part numbers of polyester washers for adjustment

16628731 thickness 0.5 mm

16288001 thickness 0.13 mm

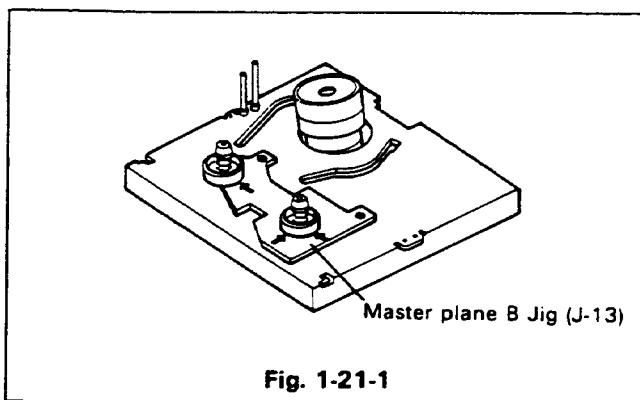


Fig. 1-21-1

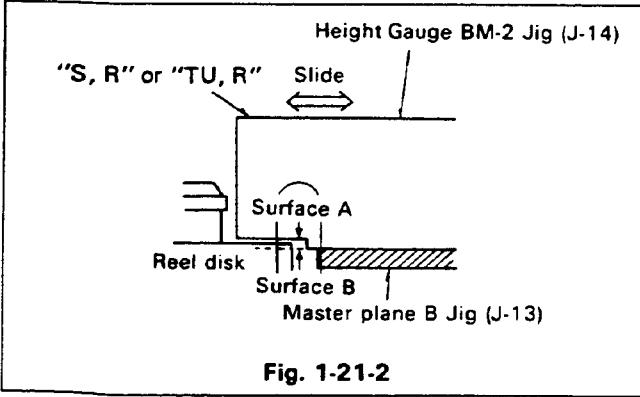


Fig. 1-21-2

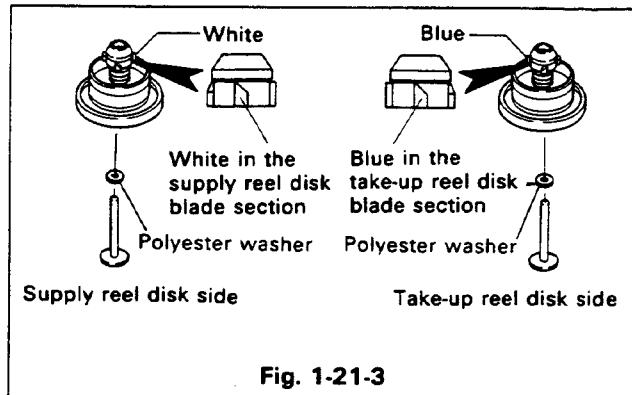


Fig. 1-21-3

1-22. TENSION REGULATION ARM ASSEMBLY (Figure 1-22)

- (1) Remove screw ①, then remove the tension regulation band assembly from the tension regulation arm assembly.
- (2) Remove retaining ring ② from the reverse side of the chassis.
- (3) Remove the tension regulation arm assembly upwards.
- (4) Replace the tension regulation arm assembly and mount it into position by following the above procedure in reverse.

Notes:

1. When installing the tension regulation arm assembly into place, pin Ⓐ should fall into position Ⓛ as shown in Fig. 1-22.
2. Adjust the position of the tension regulation arm by referring to Item 1-18.

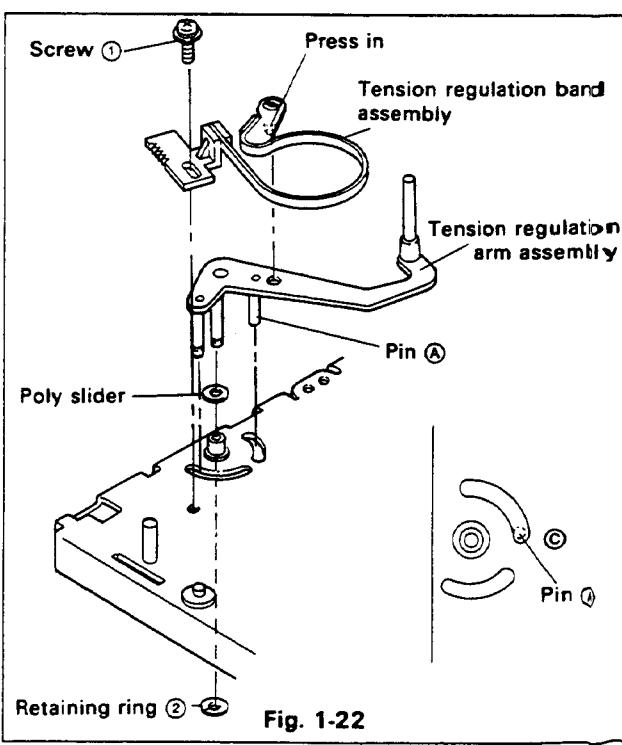


Fig. 1-22

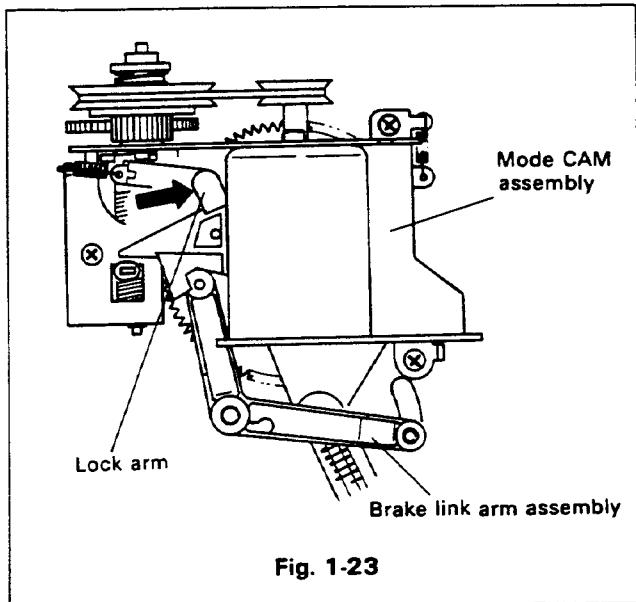
1-23. MEASURING AND CHECKING THE FWD REEL TORQUE (Figure 1-23)

- (1) Remove the cassette housing and short TP101 and TP102 of the S/S/V circuit board with a clip.
(Refer to Fig. 1-5.)
- (2) Activate the FWD mode.
- (3) Set the torque gauge on the take-up reel disk base and measure the torque.
- (4) FWD torque rating: $90 \text{ gcm} \pm 15 \text{ gcm}$.
- (5) FF, REW torque rating: more than 400 gcm .
- (6) REV torque rating: $170 \text{ gcm} \pm 25 \text{ gcm}$.

1-24. MEASURING AND CHECKING THE BRAKING TORQUE (Figures 1-23, 1-24, 1-25)

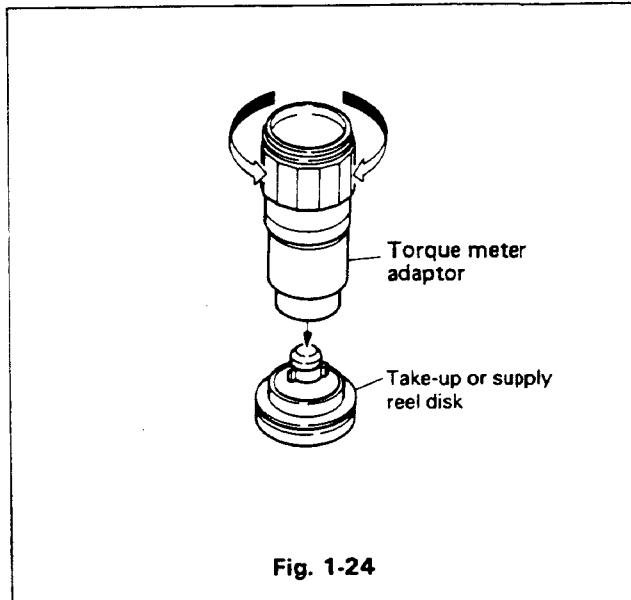
Be sure to carry out the following measurements after the brake arm (R),(L) has been replaced.

- (1) Remove the cassette housing.
- (2) Keep the VCR in the FF mode and unplug the AC cord.
- (3) Press the lock arm of the mode cam assembly in the direction of the arrow.



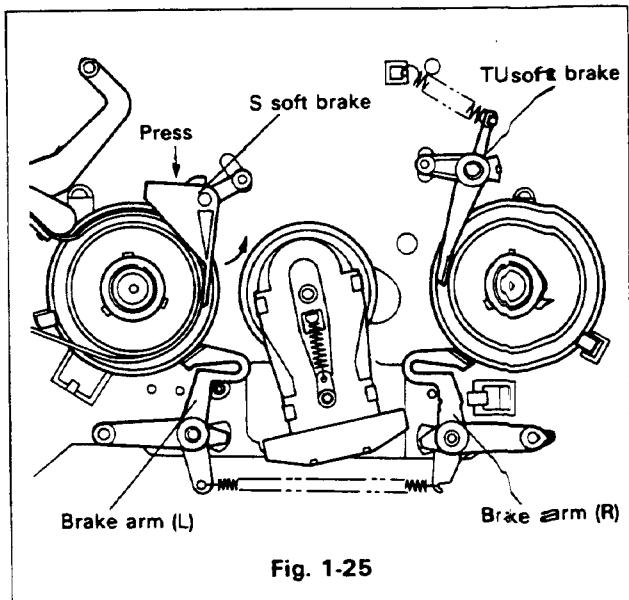
- (4) Before measuring the torque of the brake arm (L), lightly push the S soft brake in the direction indicated by the arrow, then release the tension regulation band from the reel disk.
- (5) Place a torque meter on the S reel disk. Grasping the torque meter lightly, turn it clockwise, and read out the value when the meter face plate begins to move along together with the meter needle. Check that this value falls between $250 \sim 500 \text{ gcm}$.

- (6) Using the same procedure as above, lightly grasp the torque meter, turn the gauge counterclockwise, and read out the value when the meter face plate begins to move along with the meter needle. Check that this value falls between $50 \sim 180 \text{ gcm}$.



Notes:

1. When measuring the brake arm (R) torque, lightly push the TU soft brake so that it releases from the reel disk, following the same procedure as when measuring the torque of the brake arm (L).
2. If the measured value deviates excessively from the appropriate values, carefully check the springs, etc.



2. CHECKING AND ADJUSTING THE TAPE PATH

Because the tape transport system is precision-adjusted at the factory prior to product shipment, there is usually no need to re-adjust the system. Note, however, that after

extensive use or when any tape transport system parts have been replaced, it becomes necessary to check and adjust the tape path and tape transport system.

2-1. TAPE PATH MECHANISM (Figure 2-1)

The S-system tape path is characterized by upper drum rotation with the video head to wind the tape around the drum in an M-shaped form.

To wind the tape accurately around the tilted drum, the tape is guided by a slanted guide posts (thrust poles) mounted to the left and right of the drum. The tape level during operation is determined by the pair of guide rollers.

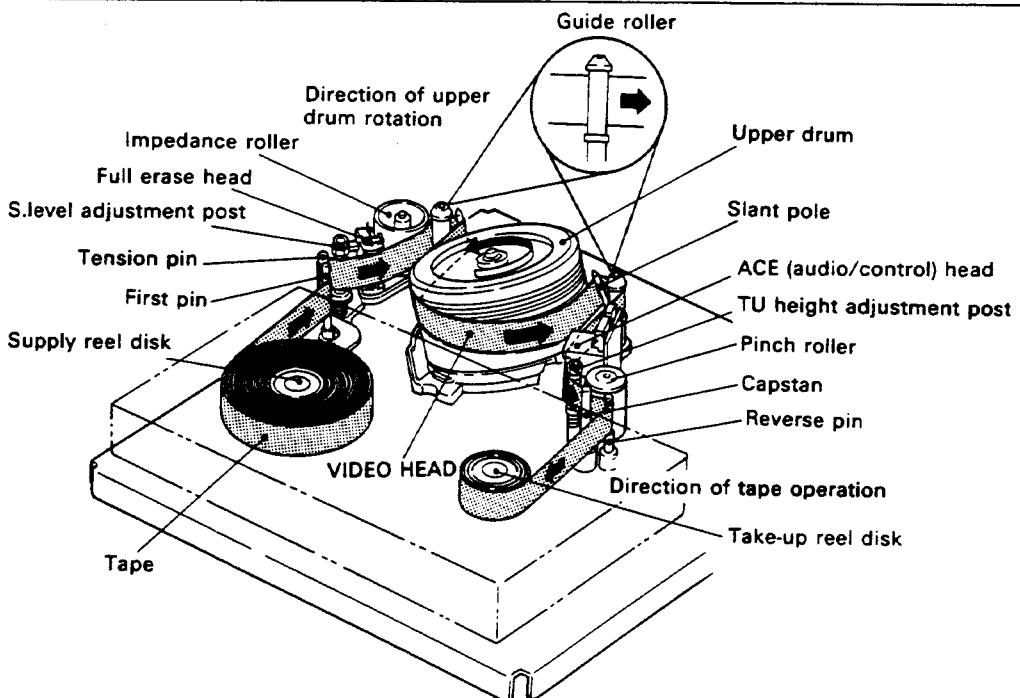


Fig. 2-1

The tape is always wound around the cassette through the first pin, tension pin, and S.level adjustment post via the path indicated by the arrows in Fig. 2-1.

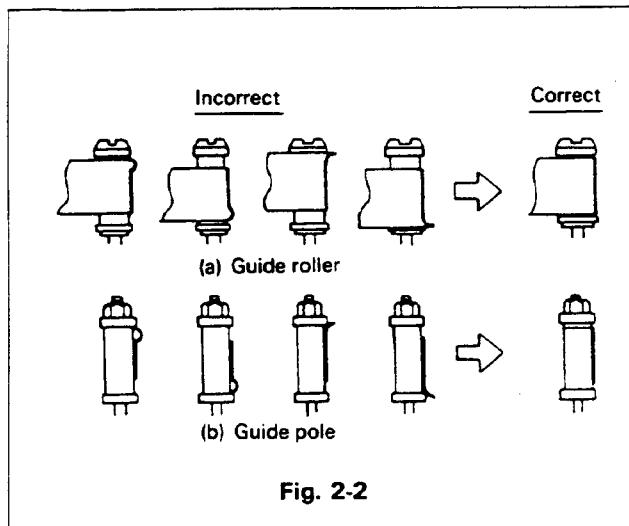
In addition, the impedance roller absorbs minor vibration in the direction of tape operation to eliminate picture jitter and voice wow and flutter.

The reverse pin controls the level of the tape fed from the take-up reel side before it reaches the capstan (pinch roller) when the tape is reversed in the REV mode.

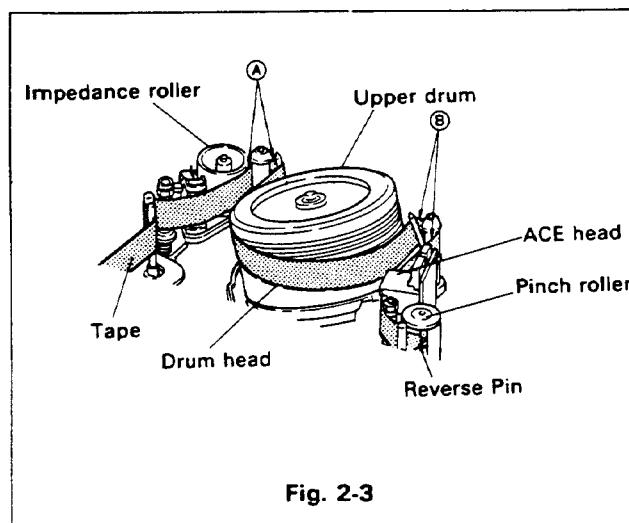
2-2. CHECKING THE TAPE TRANSPORT SYSTEM (Figures 2-2, 2-3)

- (1) Use a E-120 cassette tape.
- (2) Use a cleaning cloth soaked in cleaning solution (isopropyl alcohol) to clean the tape transport system parts (tape guide, tape contact surface of drum, capstan shaft, pinch roller, surface of ACE and FE heads, etc.).
- (3) Use a cassette tape to check the following points.
- (4) Operate the PLAY and STOP modes a few times to ensure proper operation.

- (5) In the PLAY, CUE, and REV modes, observe whether the tape is being wrinkled or not on the supply guide roller, supply guide pole, take-up guide roller, take-up guide pole and reverse pin. If the tape is being wrinkled, make the necessary adjustments by referring to figure 2-2 and performing the adjustments described in Item 2-3.



- (6) In the PLAY, CUE and REV modes, confirm that tape undulation does not occur at sections Ⓐ and Ⓑ shown in Fig. 2-3. To check section Ⓑ, remove the impedance roller from the tape.
 (7) Repeat the REV and CUE modes a few times alternately to check that the tape does not move up and lower at the lower area of the ACE head.



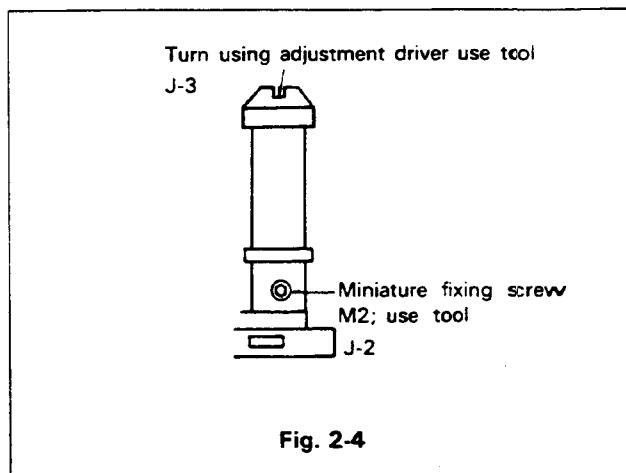
2-3. ADJUSTING THE TAPE TRANSPORT SYSTEM (Figures 2-4, 2-5, 2-6)

Only make these adjustments if a malfunction has been detected during the checking described in Item 2-2.

Note: Be sure to carry out intercompatibility adjustments after the tape transport system has been adjusted, be sure to make the intercompatibility adjustments to ensure compatibility among parts.

2-3-1 Adjusting the guide roller height (vertical pole height adjustment)

- (1) As shown in Fig. 2-4, loosen the fixing screws of the supply guide roller and take-up guide roller (until the guide rollers can be turned easily by using the adjustment screwdriver).



- (2) Insert a cassette tape, and activate the PLAY mode.
 (3) Rotate the supply guide roller with the adjustment screwdriver (J-3) to tighten tape tension at the upper and lower flanges.
 (4) Adjust the take-up guide roller according to the same procedure.

2-3-2 Adjusting the guide pole and reverse pin heights

Note: When adjusting the take-up guide pole height, be sure to remove the cap.

[A] Adjusting the guide pole and reverse pin heights

- (1) To adjust the height of supply-side guide pole, set the Height Gauge AM-2 Jig (J-12) on the chassis as shown in Fig. 2-5 and rotate the nylon nut to adjust to the height of the lower surface of the upper flange.
 (2) To adjust the height of take-up side guide pole, place the Master Plane B Jig (J-13) on the chassis, and place the Height Gauge AM-2 Jig (J-12) on J-13 with the side marked "TU, R" facing up as shown in Fig. 2-5.

Then rotate the nylon nut to adjust to the height of the lower surface of the upper flange.

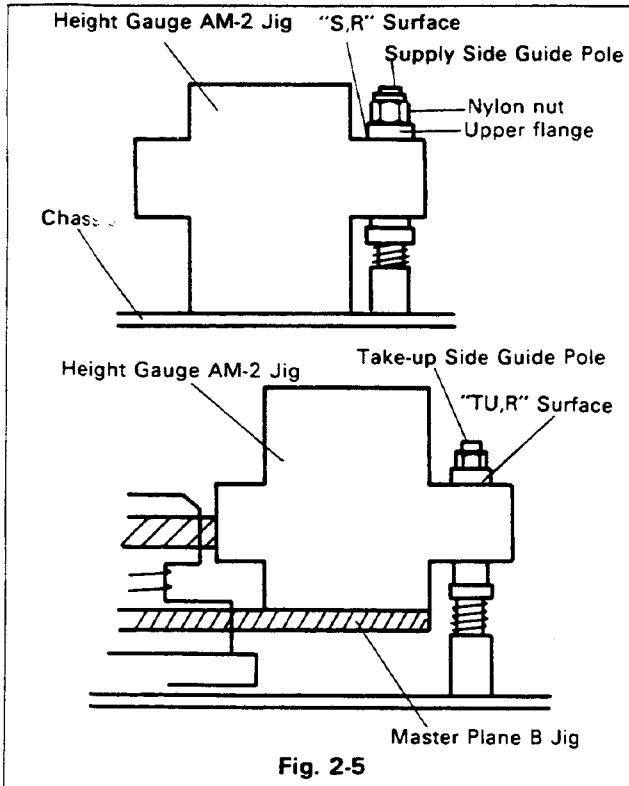


Fig. 2-5

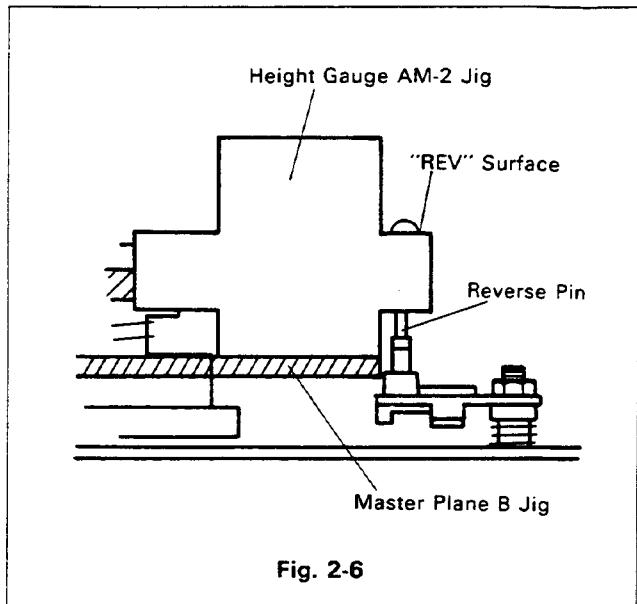


Fig. 2-6

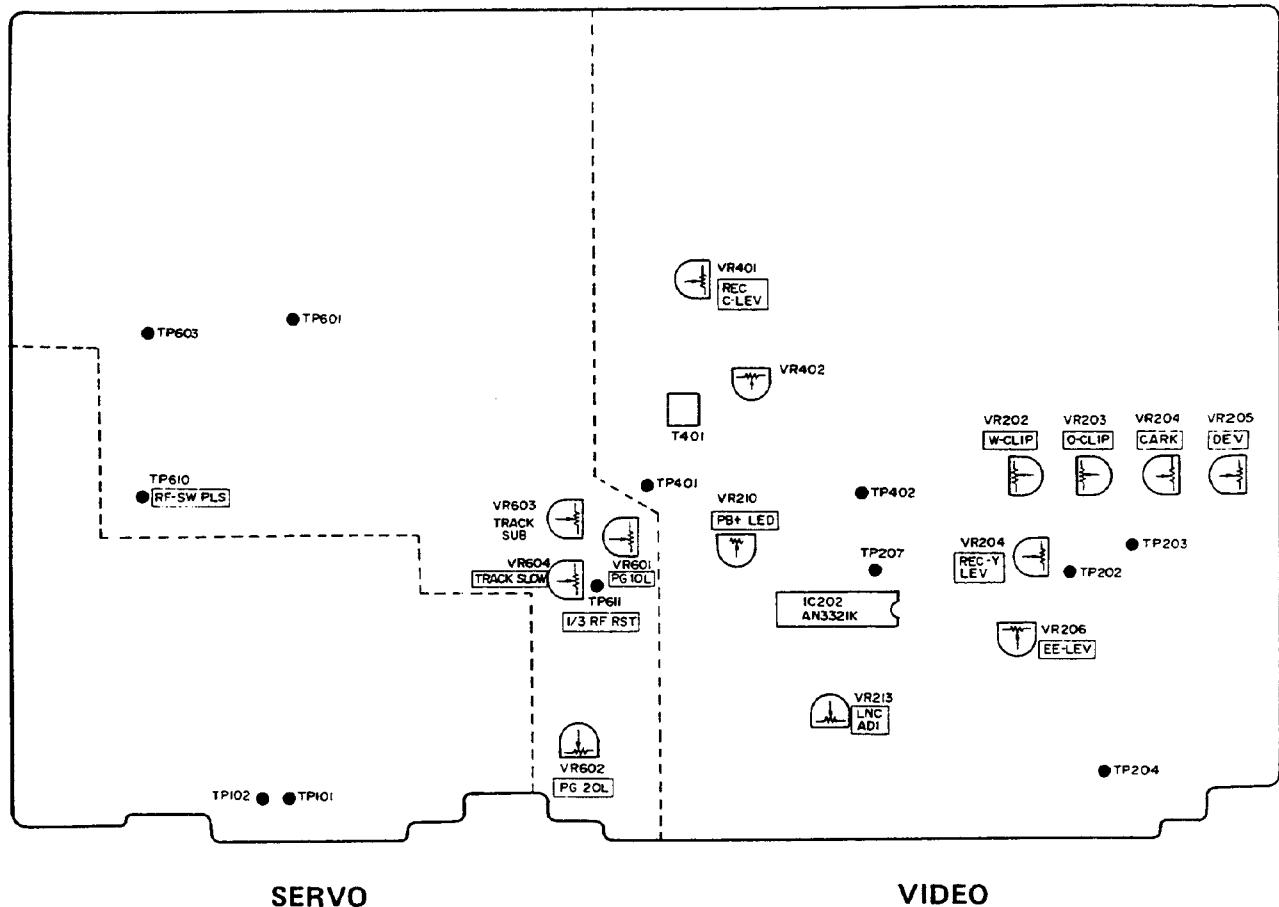
- (3) To adjust the height of the reverse pin, place the Master Plane B-2 Jig (J-13) on the chassis, and place the Height Gauge AM-2 Jig (J-12) on J-13 with the side marked "REV" facing up as shown in Fig. 2-6. Then rotate the nylon nut to adjust to the height of the lower surface of the upper flange.

[B] Precisely adjusting the supply and take-up guide pole heights

- 1 Insert a E-120 cassette tape, and activate the PLAY mode.
- (2) As shown in Fig. 2-2, use the box driver (J-5) to precisely adjust the guide pole height and eliminate tape wrinkling on the pole.
- (3) If tape wrinkling cannot be eliminated by the above adjustment, check the supply reel disk height, tension pin, and other parts.

3. INTERCOMPATIBILITY ADJUSTMENTS

Because these adjustments have a significant effect on the picture quality in the respective modes, as well as affecting the degree of tape intercompatibility, be sure to perform the following procedures very carefully and thoroughly.

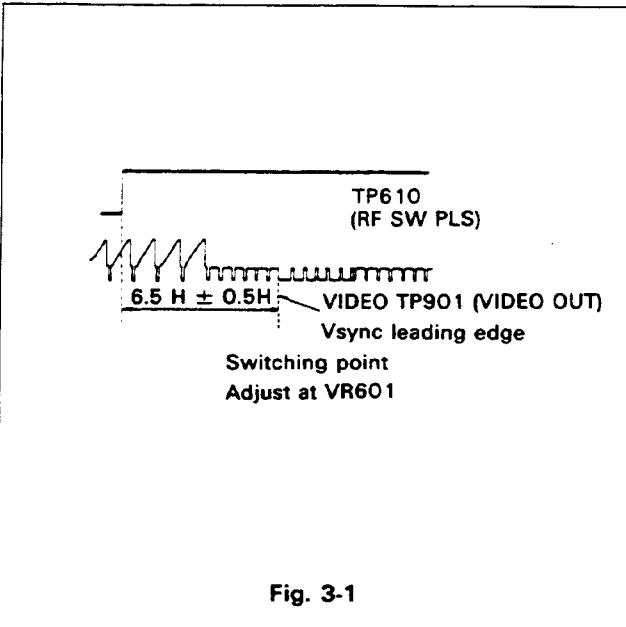


* This circuit board is viewed from component side.

3-1. CHECKING THE FM WAVEFORMS

3-1-1 Check 1: Checking the playback switching point

- (1) Play the alignment tape (MH-2).
- (2) Connect channel 1 of the oscilloscope to TP610 of the S/S/V circuit board.
- Connect channel 2 of the oscilloscope to TP901 of the jack terminal circuit board.
- (3) Confirm that the interval from the RF switching pulse to the Vsync leading edge is at $6.5H \pm 0.5H$.
- (4) If not at $6.5H \pm 0.5H$, adjust VR601 on the S/S/V circuit board to set the interval at $6.5H \pm 0.5H$.



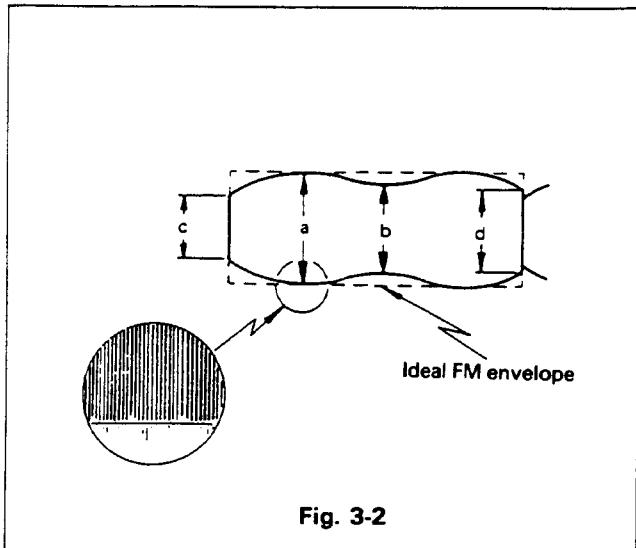
3-1-2 Check 2: Checking the FM waveform

- (1) Connect channel 1 of the oscilloscope to TP402 of the S/S/V circuit board. Also connect TP610 of the S/S/V circuit board or TP901 of the jack terminal circuit board.
- (2) Play back the MH-2 alignment tape.
- (3) Turn the tracking knob to set the FM waveform output for the maximum level.
- (4) Read the FM waveform level (a) as shown in Fig. 3-2. If the waveform is a sawtooth wave, read the level at a wave section where the sawtooth waves are relatively uniform.
- (5) Read the FM waveform level (b) as shown in Fig. 3-2, and check the following:

$$\frac{b}{a} \geq 0.8$$

- (6) Read the FM waveform levels (c) (drum entrance) and (d) (drum exit), and check the following:

$$\frac{c}{a} \geq 0.7 \quad \frac{d}{a} \geq 0.7$$

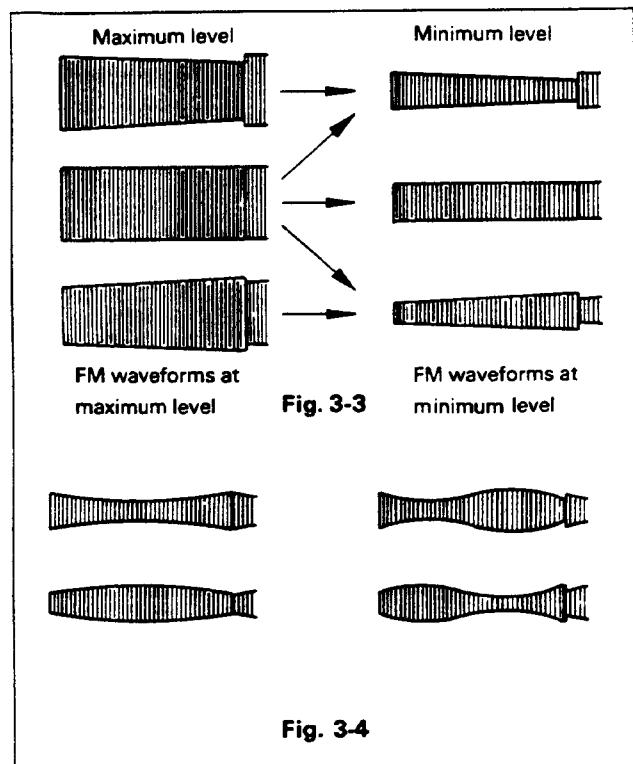


- Notes:**
1. Read the minimum levels of (b), (c), and (d).
 2. If the level values are within the above ranges, proceed to the following "Check 3-2".
 3. If any malfunction is detected, follow the coarse FM waveform adjustment procedure described in Item 3-2.

3-1-3 Check 3

- 1) As previously mentioned in Check 2 (connect the oscilloscope and play back the tape), turn the tracking knob while observing the FM waveforms. Confirm that the waveforms change linearly as shown in Fig. 3-3. When this linear change is confirmed, proceed to the ACE head height and azimuth adjustments described in Item 3-4.

- (2) When various waveforms are observed as shown in Fig. 3-4, it is necessary to make the precise adjustments described in Items 3-3.

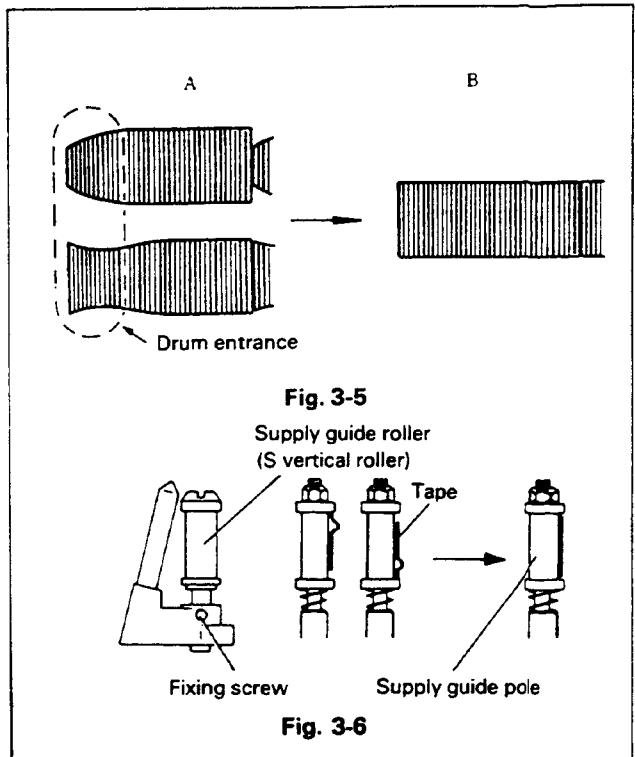


3-2. COARSE ADJUSTMENT OF FM WAVEFORMS (Preliminary adjustments)

- (1) Use the hexagonal screwdriver (J-2) to loosen the fixing screws of the supply guide and take-up guide rollers so that the guide rollers can be adjusted.
- (2) Connect channel 1 of the oscilloscope to TP402 of the S/S/V circuit board. Also connect TP610 of the S/S/V circuit board or TP901 of the jack terminal circuit board to the oscilloscope as an external synchronization terminal.
- (3) Play back the MH-2 alignment tape.

3-2-1 Drum entrance side

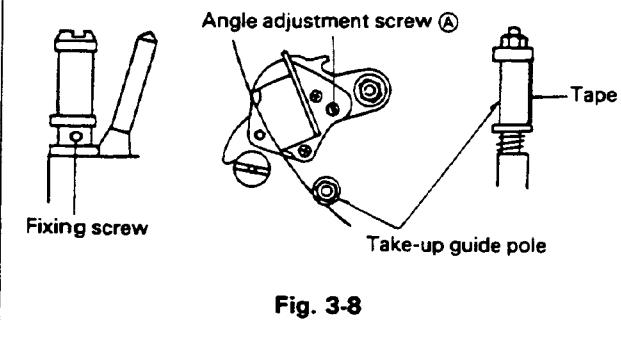
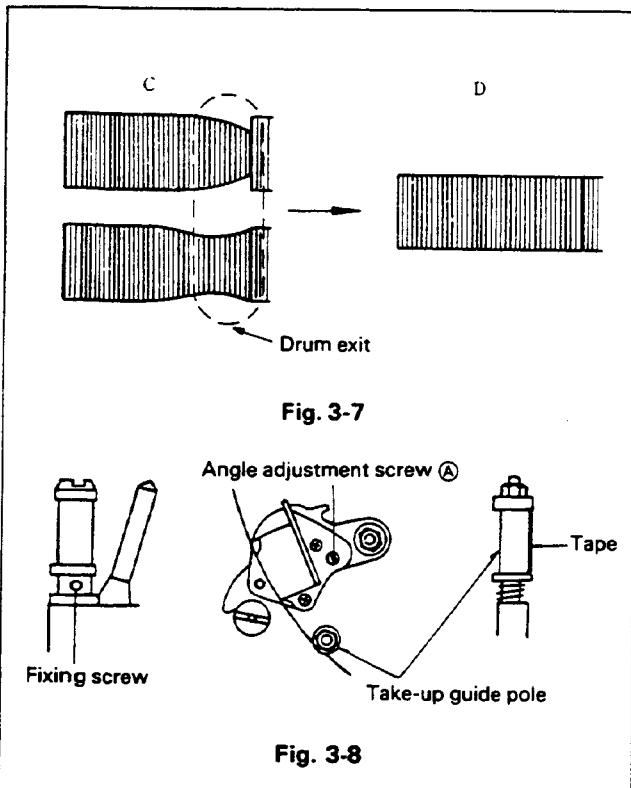
- (1) While observing the waveforms on the oscilloscope, turn the tracking knob to set the FM waveform for the maximum level.
- (2) If the FM waveforms look like A in Fig. 3-5, adjust the supply guide roller until the waveforms look like B in Fig. 3-5.



- Notes:**
1. Gently tighten the fixing screws so that the guide roller height adjustment screw can rotate freely. (Adjust within the proper range by using tool J-3).
 2. Make small guide roller adjustments to avoid damaging the MH-2 alignment tape.
 3. While observing the waveforms, check for any tape wrinkling at the guide poles and leading edge of the drum.

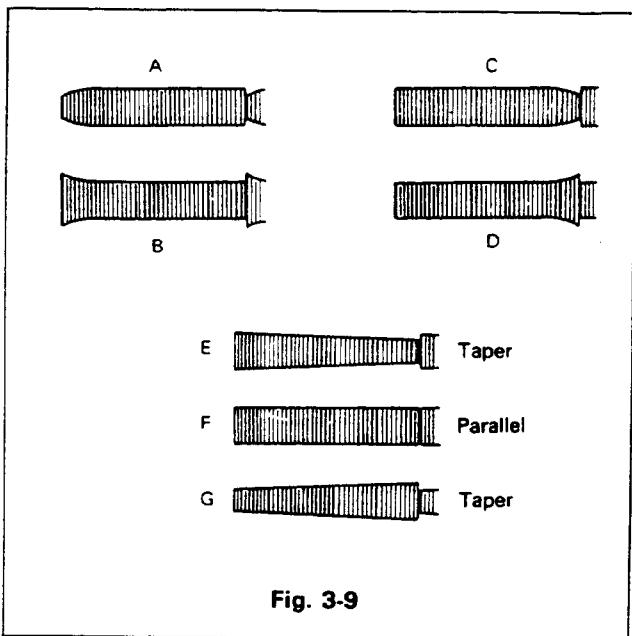
3-2-2 Drum exit

- (1) Adjust the FM waveforms by using the same procedure as used for drum entrance adjustment (by turning the take-up guide roller). If the waveforms look like C in Fig. 3-7, adjust the take-up guide roller until the waveforms look like D.



3-3. FINE ADJUSTMENT FOR INTER-COMPATIBILITY

- (1) Connect the oscilloscope to TP402 of the S/S/V circuit board. Also connect TP610 of the S/S/V circuit board or TP901 of the jack terminal circuit board to the external synchronization terminal of the oscilloscope. Playback the MH-2 alignment tape. While observing the waveforms on the oscilloscope, turn the tracking knob to set the FM waveforms for minimum levels.
- (2) If the waveforms look like A or B in Fig. 3-9, minimize the FM waveform output by carefully adjusting the supply guide roller until the waveforms look like E, F, or G in Fig. 3-9.
- (3) If the waveforms look like C or D in Fig. 3-9, minimize the FM waveform output by carefully adjusting the take-up guide roller until the waveforms look like E, F, or G in Fig. 3-9.
- (4) While turning the tracking knob to adjust the maximum and minimum levels of FM waveform output, adjust the supply and take-up guide rollers until the waveforms look like E, F, or G in Fig. 3-9.



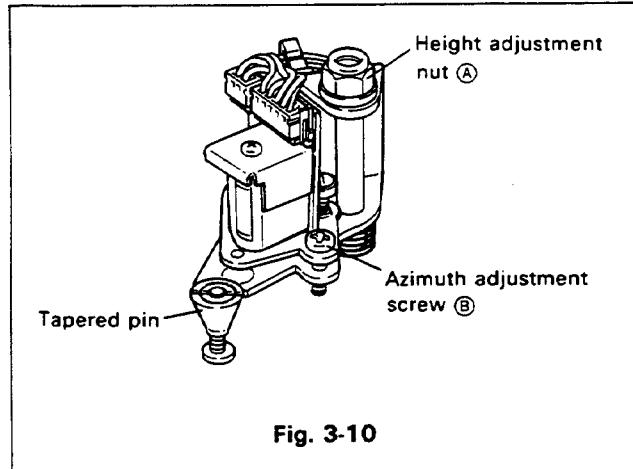
Note:

After completing these adjustments, confirm that the tape transport operation is functioning properly, and carefully tighten the fixing screws.

3-4. ACE HEAD ADJUSTMENT

If the height of the audio/control head is incorrect, a poor SN ratio will result when reproducing prerecorded tapes. Refer to Fig. 3-10.

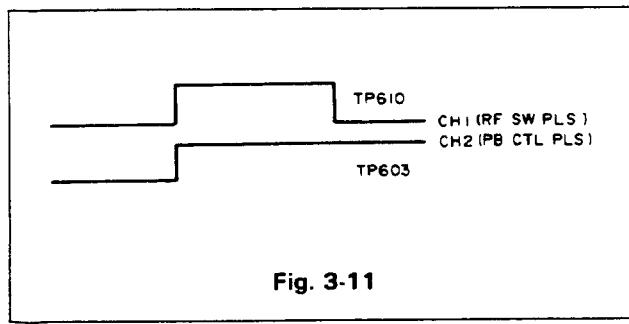
- (1) Connect channel 1 of the oscilloscope to the AUDIO OUT jack on the rear panel.
- (2) Play back the MH-2 alignment tape and reproduce the 6 KHz audio signal.
- (3) While observing the audio output signal on the oscilloscope, adjust the height adjustment nut **Ⓐ** shown in Fig. 3-10 to the maximum output level.
- (4) Next, adjust the azimuth adjustment screw **Ⓑ** to the maximum output level.



3-5. ADJUSTING THE CTL POSITION

[A] Adjusting subtracking

- (1) Connect channel 1 of the oscilloscope to TP610 of the S/S/V circuit board. Also, connect channel 2 of the oscilloscope to TP603 of the S/S/V circuit board.
- (2) Play back the MH-2 alignment tape.
- (3) Adjust VR603 so that the leading edge of CTL PLS is synchronized with the leading edge of the RF switching pulse as shown in Fig. 3-11.



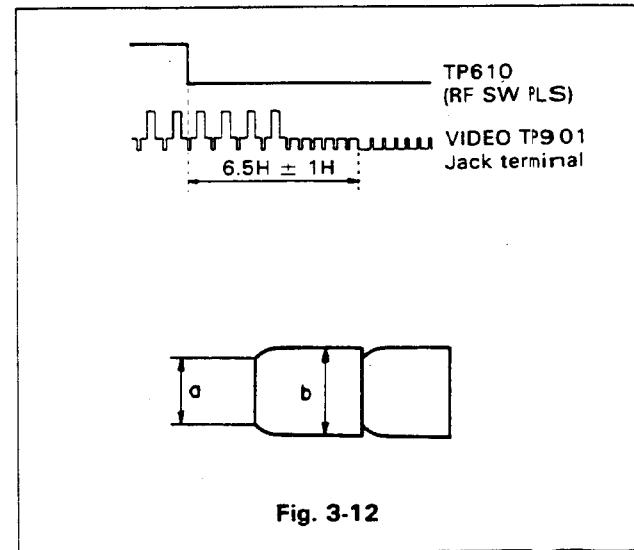
Note: The tracking knob must be set in the center position.

[B] Adjusting the ACE head position

- (1) Connect channel 1 of the oscilloscope to TP402 of the S/S/V circuit board, and channel 2 of the oscilloscope to TP610 of the S/S/V circuit board or TP901 of the jack terminal circuit board.
- (2) Play back the MH-2 alignment tape, set the tracking knob at the center position, and turn the tapered pin in Fig. 3-10 so that the maximum FM waveform output level is set. Play back the MH-2 alignment tape, and confirm that the maximum FM waveform output level is obtained with the tracking knob set at the center position.

3-6. FINAL TESTING AND CHECKING

- (1) Connect channel 1 of the oscilloscope to TP610 of the S/S/V circuit board. Connect channel 2 of the oscilloscope to TP901 of the jack terminal circuit board.
- (2) Confirm that the REC timing is $6.5 \text{ H} \pm 1$.
- (3) Record this signal on a blank tape (using a monochrome or stair-step pattern).
- (4) Check the FM waveforms thus recorded on the tape. Connect channel 1 of the oscilloscope to TP402 of the S/S/V circuit board, and connect channel 2 of the oscilloscope to TP610 of the S/S/V circuit board. Then, play the tape back.
- (5) Confirm that the degree of evenness (a/b) is greater than 0.8, or greater than 0.85 if minor fluctuations occur.



After completing the above test and adjustment procedures, confirm that the tape transport operation is functioning properly, place locking paint on the tapered pin screw.

4. ELECTRICAL ADJUSTMENTS

4-1. PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. Note that these adjustments should only be made after completing all repairs and replacements. Also, do not attempt these adjustments unless the proper equipment is available.

4-1-1 Required test equipment and jig

- | | |
|---|--|
| ① Color TV monitor | ⑤ Audio generator |
| ② Oscilloscope: Wideband | ⑥ Alignment tape (MH-2), and other general electrical tools. |
| ③ Signal generator: Color bar, Stair-step | ⑦ Video tape: E-60, E-120 |
| ④ Frequency counter | ⑧ Digital multimeter or tester |

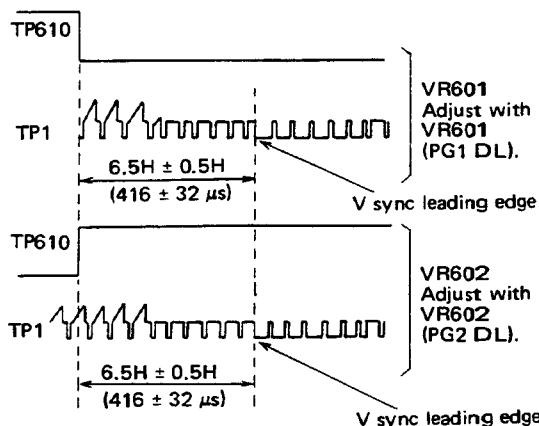
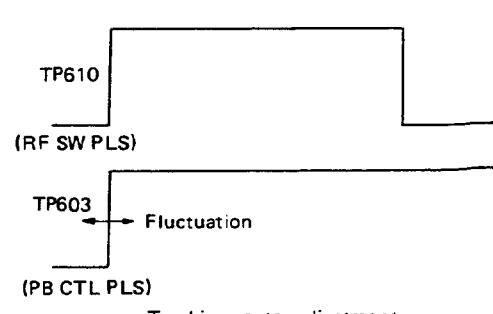
4-1-2 Alignment tape contents

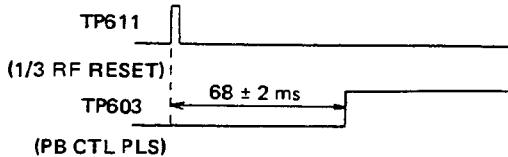
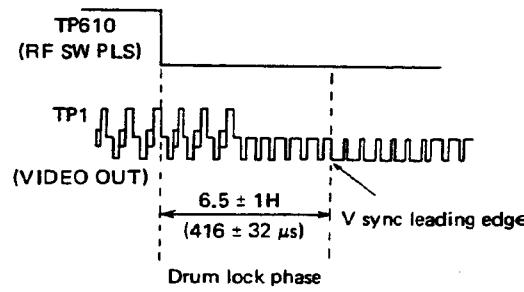
1. MH-2

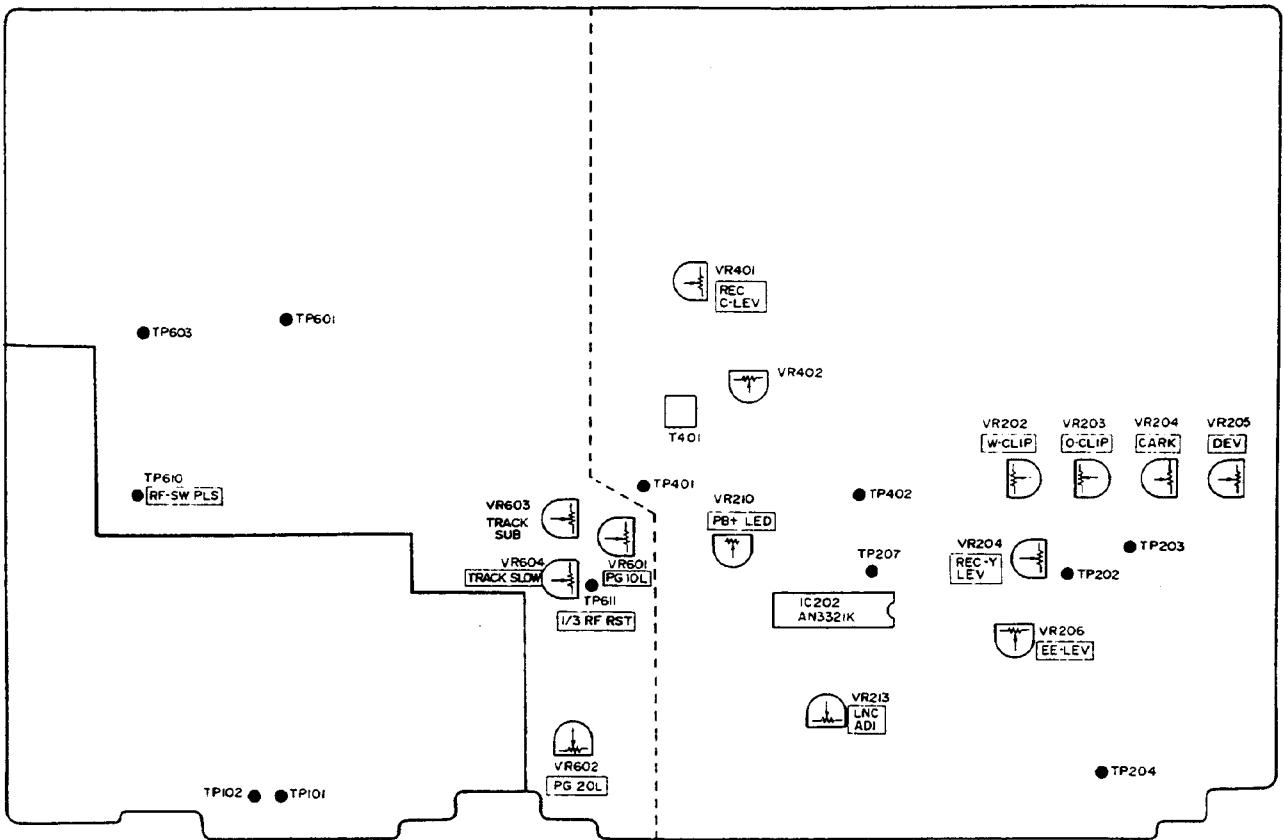
No.	Playback Time	Video Signal	Audio Signal	Applications
1	10 minutes	Stair-step	6 kHz	<ul style="list-style-type: none">● Interchangeability checks and adjustments● Servo circuit checks and adjustments● Audio head azimuth adjustment
2	5 minutes	(none)	3 kHz	<ul style="list-style-type: none">● Tape speed checks● Wow and flutter checks
3	10 minutes	Color bar	1 kHz 0 dB	<ul style="list-style-type: none">● Video signal playback circuit checks and adjustments● Audio signal playback circuit checks and adjustments
4	3 minutes	RF sweep	(none)	<ul style="list-style-type: none">● Video head resonance adjustments● Marker: 2.0, 4.0, 5.0 MHz (not used)

Table 4-1 MH-2 contents

4-2. SERVO CIRCUIT (S/S/V board)

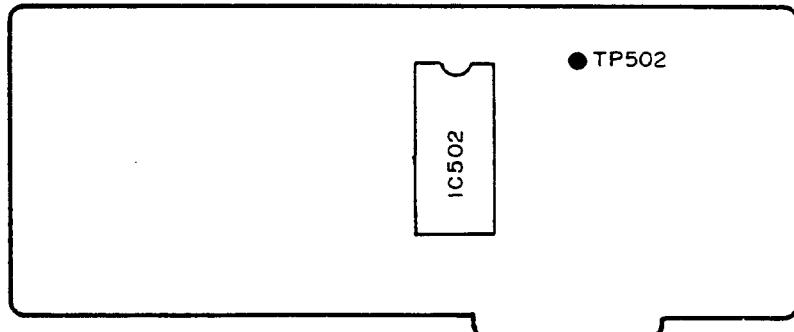
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Adjustment & Confirmation
1	Video switching point	TP610 (RF SW PLS) TP1 [on jack terminal] (VIDEO OUTPUT)	VR601 (PG1 DL) VR602 (PG2 DL)	MH-2 P.B.	<p>1. Connect an oscilloscope to TP610 and TP1. 2. Play back the alignment tape specified at left, watch the monitor screen, and adjust the tracking VR to the best tracking condition. 3. Adjust VR601 and VR602 so that the phase relationship of RF SW PLS with the reproduced video signals will be as shown below.</p> 
2	Tracking SUB VR	TP610 (RF SW PLS) TP603 (PB CTL PLS)	VR603 (TRACKING SUB)	MH-2 P.B.	<p>1. Connect an oscilloscope to TP601 and TP603. 2. Press the tracking pushbutton to the center click position. 3. Play pack MH-2, and adjust VR603 until the waveform has the phase relationship shown below. (Triggering TP610 causes the waveform at TP603 to fluctuate. Adjust to the center of the wave.)</p> 

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Adjustment & Confirmation
3	Slow SUB tracking VR	TP611 (1/3 RF RESET PLS) TP603 (PB CTL PLS)	VR604 (TR SUB SLOW)	MH-2 P.B.	<p>1. Connect TP611 and TP603 to an oscilloscope. 2. Press the tracking pushbutton to the center click position. 3. Play back MH-2, and adjust VR604 until the waveform has the phase relationship shown below.</p> 
4	Drum lock phase (REC TIMING)	TP610 (RF SW PLS) TP1 [on jack terminal] (VIDEO OUTPUT)	Check	<ul style="list-style-type: none"> Color bar Standard REC mode 	<p>1. Connect an oscilloscope to TP610 and TP1. 2. Select the standard REC mode, and check the waveforms at TP610 and TP1 that their phase relationship is as shown below.</p> <p>Note: If a damaged tape is played back, the lock phase will show much deviation during an operation check. If tape damage is slight, check that the center of lock phase deviation meets the relationship shown below.</p> 



SERVO

* This circuit board is viewed from component side.

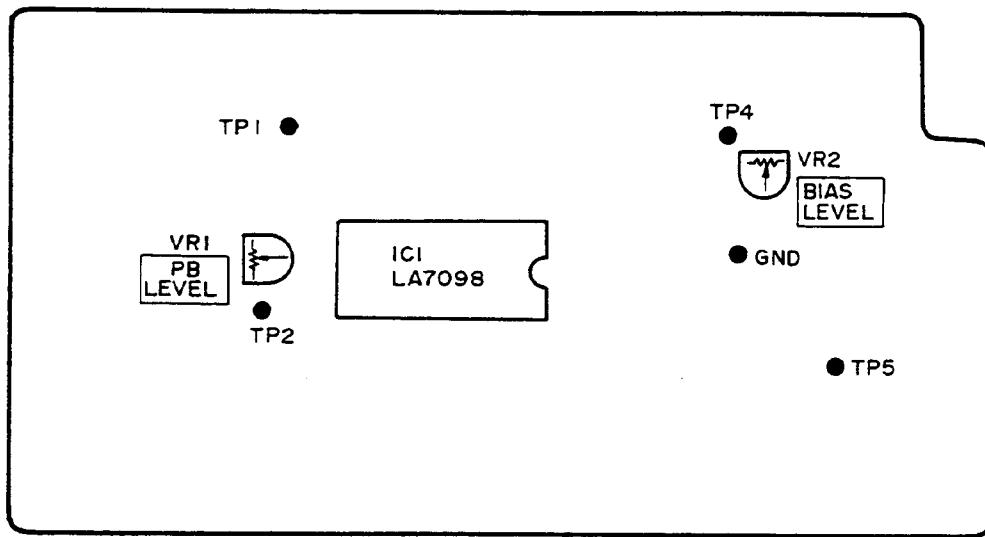


PREAMP

* This circuit board is viewed from component side.

4-3. AUDIO CIRCUIT (AUDIO board)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	PB Level	AUDIO Output Terminal	VR1 (P.B LEVEL) of AUDIO board	● Alignment Tape MH-2 ● Play Back	Adjust VR1 so that the output level of the AUDIO output terminal is set to -8 ± 1 dBs. (Oscilloscope display: 0.87 ± 0.10 Vp-p.)
2	Head Bias	AUDIO board TP4, GND	VR2 (BIAS LEVEL)	● No signal is input ● SP (2H) REC mode	Adjust VR2 so that the voltage between TP4 \oplus and GND terminal \ominus (displayed on the AC millivoltmeter) of the AUDIO board is set to 110 ± 10 mVrms.



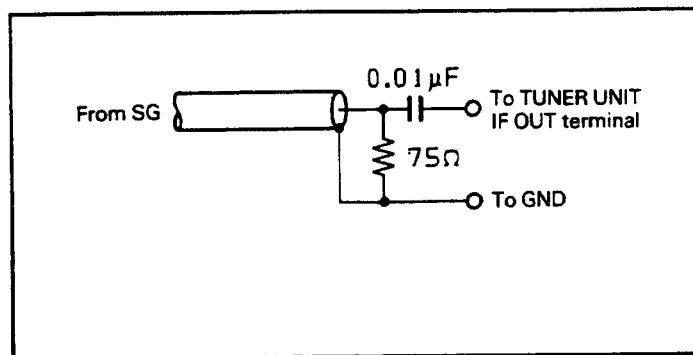
AUDIO

* This circuit board is viewed from component side.

4-4. TUNER/IF CIRCUIT

1 AFT transformer adjustments

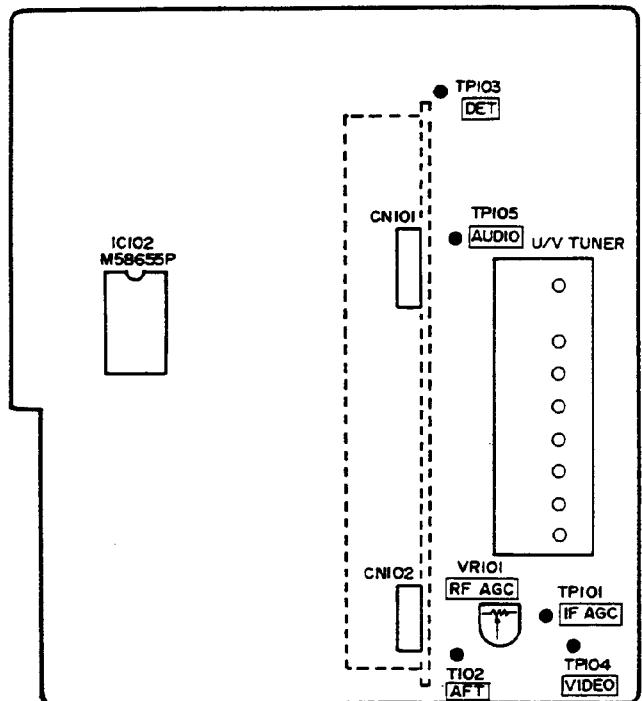
- (1) Connect the 38.9 MHz, 80 dB μ unmodulated signal to the IF output terminal of the Tuner Unit, by using the input pad shown below.
- Note that no signal is being input to the ANT IN terminal at this time.



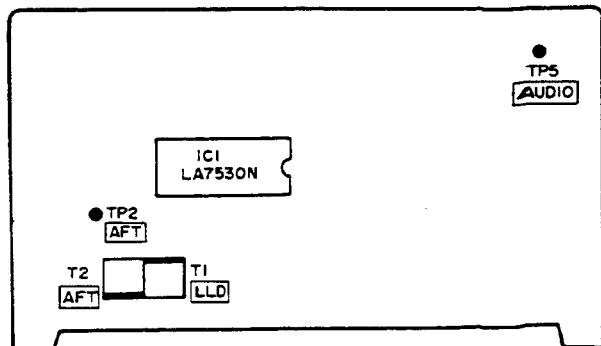
- (2) Connect an oscilloscope to TP102 (AFT).
- (3) Slowly turn T2 (AFT Transformer) to adjust the output voltage of TP102 to 5.0 ± 0.5 VDC at the point where the voltage suddenly fluctuates. (Do not adjust the voltage to 6.0 VDC.)

2 RF AGC adjustments

- (1) Input a 58 dB μ RF signal (channel E7) to the ANT IN terminal.
- (2) Connect a digital voltmeter to AGC terminal of the TUNER UNIT, and adjust VR101 (RF AGC) so that the voltage at the AGC terminal is set to 6.5 ± 0.5 VDC.



TUNER

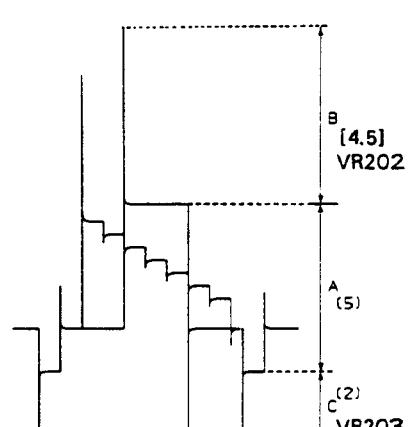
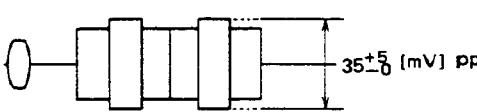


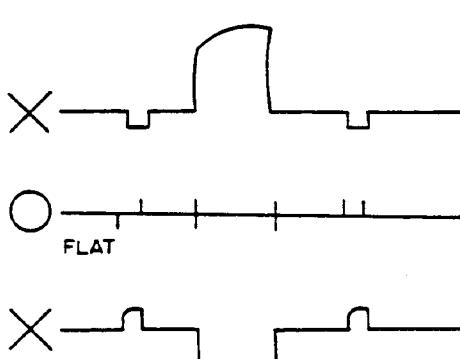
IF

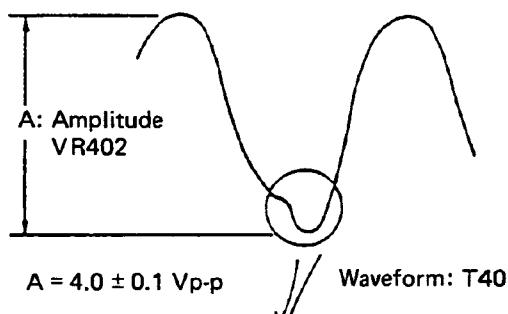
* This circuit board is viewed from component side.

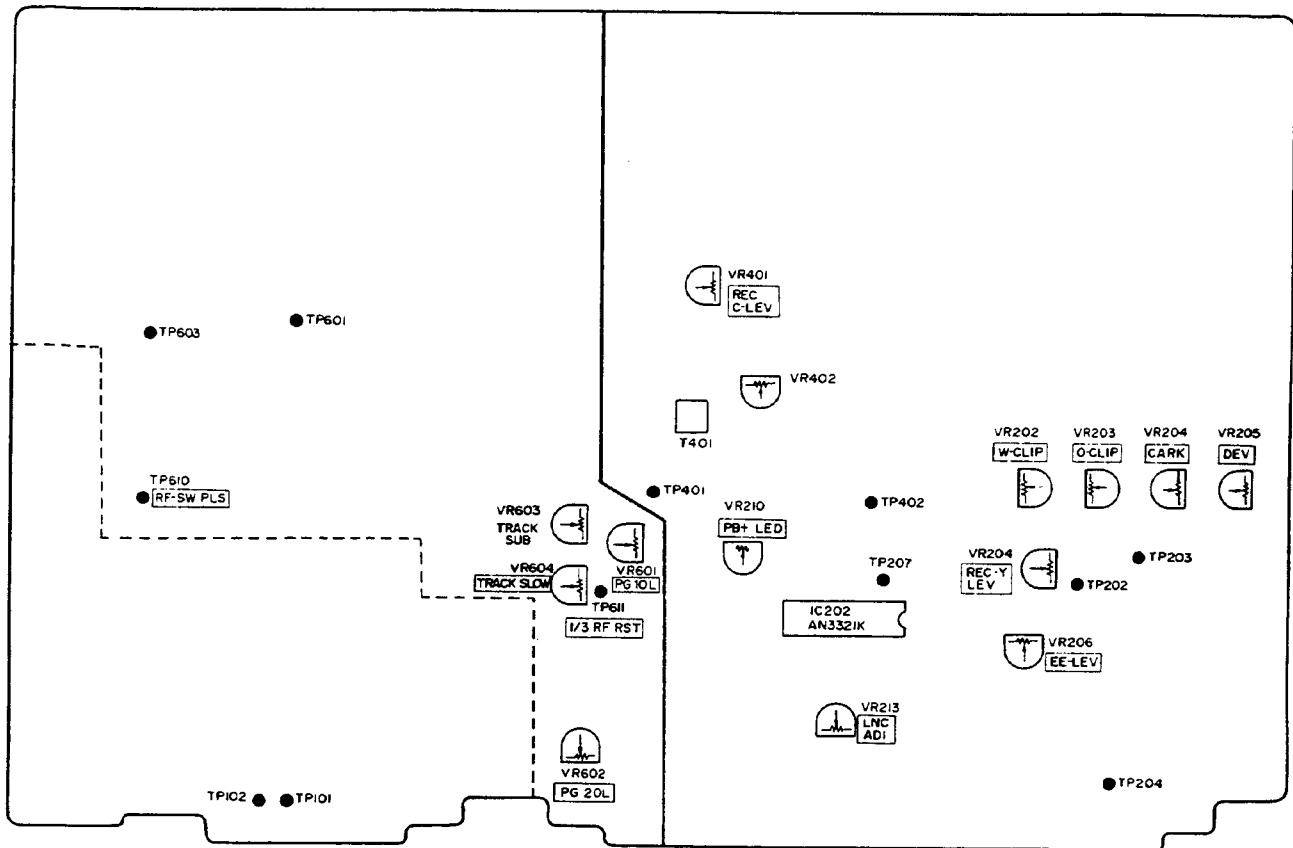
4-5. VIDEO CIRCUIT (S/S/V voard)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	EE Level	TP901 (Trigger: TP204) of JACK TER- MINAL board	VR206	Input (VIDEO IN): Color Bar STOP	<p>1. Input a color bar signal to VIDEO IN. 2. Connect an oscilloscope to TP901. (Terminate VIDEO OUT with 75-ohm impedance.) 3. Adjust VR206 (EE) so that signal issued from sync tip to white peak is set to 1.0 ± 0.1 Vp-p.</p>
2	Carrier Deviation	TP202 TP901 (Trigger: TP204)	VR204 VR210 VR205	REC MH-2 	<p>1. Set the SELECT switch to the LINE position without anything connected to the VIDEO IN terminal. 2. Connect the frequency counter to TP202. 3. Adjust VR204 (CARRIER) so that the frequency is set to $3.85^{+0.05}_{-0.0}$ MHz. 4. Play back the color bar section of MH-2, and connect an oscilloscope to TP901. 5. Adjust VR210 so that the amplitude of the playback color bar signal is set to $1.0V \pm 0.05$ Vp-p. 6. Input the color bar signal to the VIDEO IN terminal and record it. Then play this signal back. Connect an oscilloscope to TP901 to measure the amplitude of the playback color bar signal.</p> <p>a) When the measured value is within 1.0 ± 0.1 Vp-p, proceed to the following item. b) When the measured value is not in the 1.0 ± 0.1 Vp-p range, adjust according to procedure 7.</p> <p>7. Set the unit into the STOP mode:</p> <p>a) When the measured value is less than 0.9 Vp-p, rotate VR205 (DEV) counterclockwise by approx. 10 degrees while observing the PC board from the component surface. (Note: When VR205 is rotated counterclockwise while observing the board from the component surface, the amplitude of the recording signal is increased. When it is rotated clockwise, the amplitude of the recording signal is decreased.) Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude does not satisfy this range, repeat this procedure as required. If the amplitude is too large, rotate VR205 clockwise and confirm through recording and playback.</p> <p>b) When the measured value exceeds 1.1 Vp-p, rotate VR205 (DEV) clockwise by approx. 10 degrees while observing the board from the component surface. Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude is too small, adjust VR205 in the same manner as noted in Item a). If the amplitude is too large, repeat this procedure as required.</p>

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
3	White Clip Dark Clip	TP203 (Trigger: TP204)	VR202 (White Clip), VR203 (Dark Clip)	Color Bar, REC	<p>1. Input the color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP203 of the S/S/V board, and adjust the amplitude CAL knob of the oscilloscope so that the distance between sync tip and white peak of the waveform reads 5 scales. 3. Adjust VR202 (WHITE) and VR203 (DARK) so that the waveform overshoot and undershoot satisfy the ratio shown below.</p>  <p style="text-align: center;">A : B : C = 4.5 : 5 : 2</p>
4	REC Color Level Ad- justment	TP501 (Trigger: TP204) of AMP board	VR401	Color Bar REC	<p>1. Input the color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP501. 3. Rotate VR201 to minimize the FM signal. 4. Adjust VR401 so that the amplitude of color bar signal RED section is set to 35^{+5}_{-0} mV.</p> <p>Note: Be sure to make the adjustment noted in Item 6 after this adjustment.</p> 

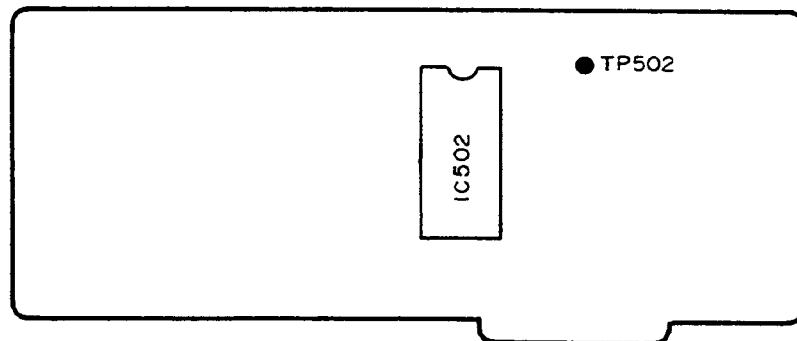
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
5	REC Y FM Level Adjustment	TP501 (Trigger: TP204) (PRE AMP board)	VR201	Color Bar, REC	<p>1. After making the adjustment in Item 5, adjust VR201 so that the amplitude of white peak section is set to 140 ± 5 mV.</p> 
6	Noise Cancel Level Adjustment	TP207 (Trigger TP204) of S/S/V board	VR213 of S/S/V board	PB	<p>Play back the tape prerecorded and adjust VR213 so that TP207 waveforms of the S/S/V board are flat. At this time, waveform difference should be less than 20 mVpp.</p> 

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Adjustment & Confirmation
7	SECAM DET. sync amplifier oscillating level	TP401	VR402 T401	Input: SECAM color bar signal REC	<p>1. Input a SECAM color bar signal to VIDEO IN. 2. Connect an oscilloscope (10:1) to TP401. 3. Adjust VR402 until the waveform at TP401 appears as shown below in MESECAM mode. (If the waveform appears otherwise, adjust T401.)</p>  <p>NG OK NG</p> <p>fh/2 adjustment</p>
8		TP401		MESECAM self recording playback	<p>1. Record SECAM color bar signals in SECAM mode and play back. 2. Connect an oscilloscope (10:1) to TP401. Check that the waveform has an amplitude (A) of 4.0 ± 0.2 Vp-p.</p>



VIDEO

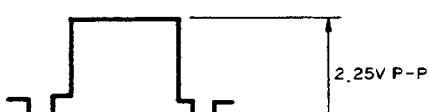
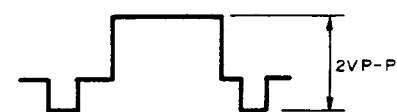
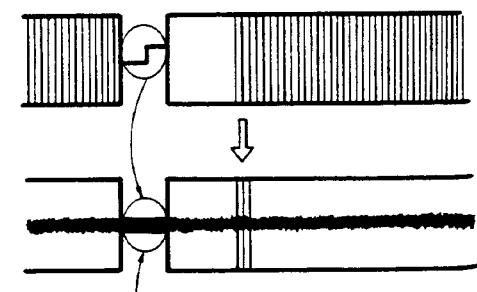
* This circuit board is viewed from component side.



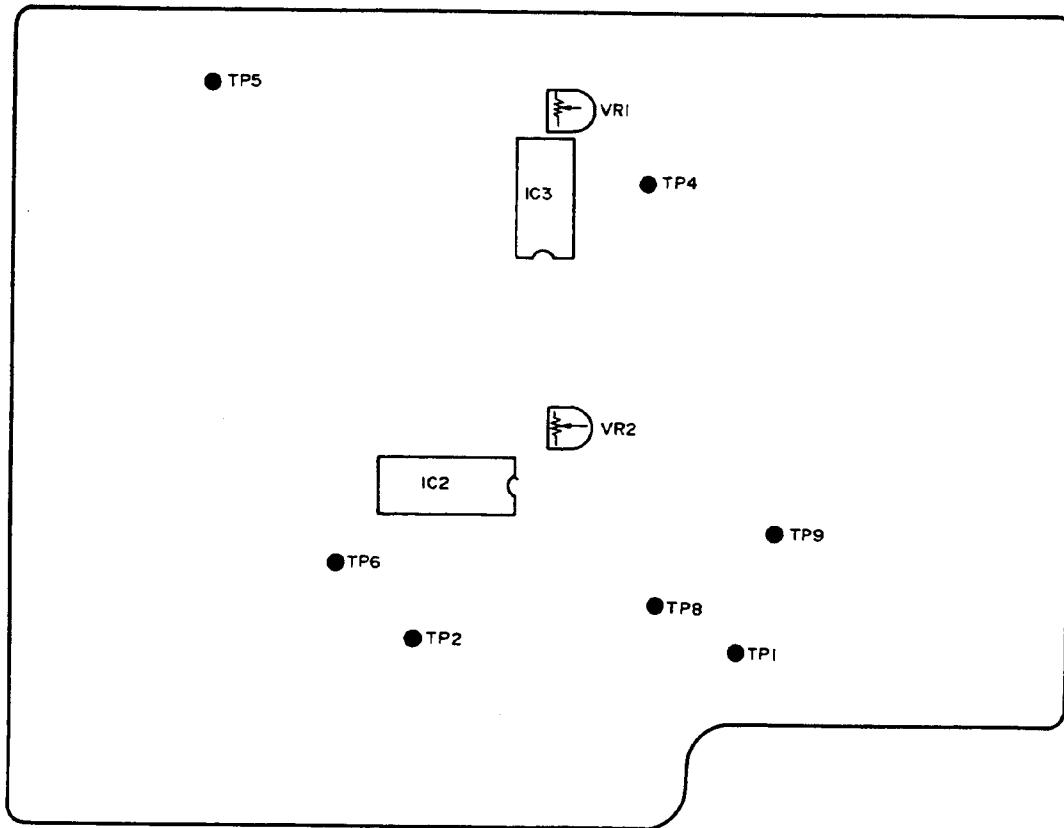
PREAMP

* This circuit board is viewed from component side.

4-6. DIGITAL

No.	Item	Check-point	Adjusting Parts	Mode/Condition	Adjustment and Confirmation
1	D/A LEVEL	TP8	VR1 (D/A LEVEL)	SLOW mode	<p>1. Play back a tape on which color bar signals are recorded. 2. Check that the output at TP201 on the S/S/V board is 2 Vp-p, select the SLOW mode, and turn VR3 until the white peak of the waveform at TP8 begins to be clipped. 3. Turn VR1 (D/A LEVEL) until the peak-to-peak value of the clipped waveform at TP8 is 2.25 Vp-p.</p> 
2	A/D LEVEL	TP8	VR3 (A/D LEVEL)	SLOW mode	<p>Play back the tape in the SLOW mode, and adjust VR3 (A/D LEVEL) so that the color bar signal at TP8 is 2 Vp-p.</p> 
3	DA LEVEL	TP2	VR1 (D/A LEVEL) PB DNR ON (Use color bar tape.)	PB DNR ON (Use color bar tape.)	<p>Play back the tape in the normal mode (with the NR switch ON DNR II mode), and adjust VR1 (D/A LEVEL) until the video signals at TP2 are at the minimum level. (V rate)</p>  <p>Adjust V sync signal to be at the same level.</p>

No.	Item	Check-point	Adjusting Parts	Mode/Condition	Adjustment and Confirmation
4	VCO	TP6 (PLL)	VR2 (VCO)	SLOW mode	<p>1. Play back the tape in the SLOW mode, turn the VARIABLE knob on the oscilloscope until the peak of the waveform at TP6 is at the 8th division of the oscilloscope scale.</p> <p>2. Turn VR2 (VCO) to adjust as shown below.</p>



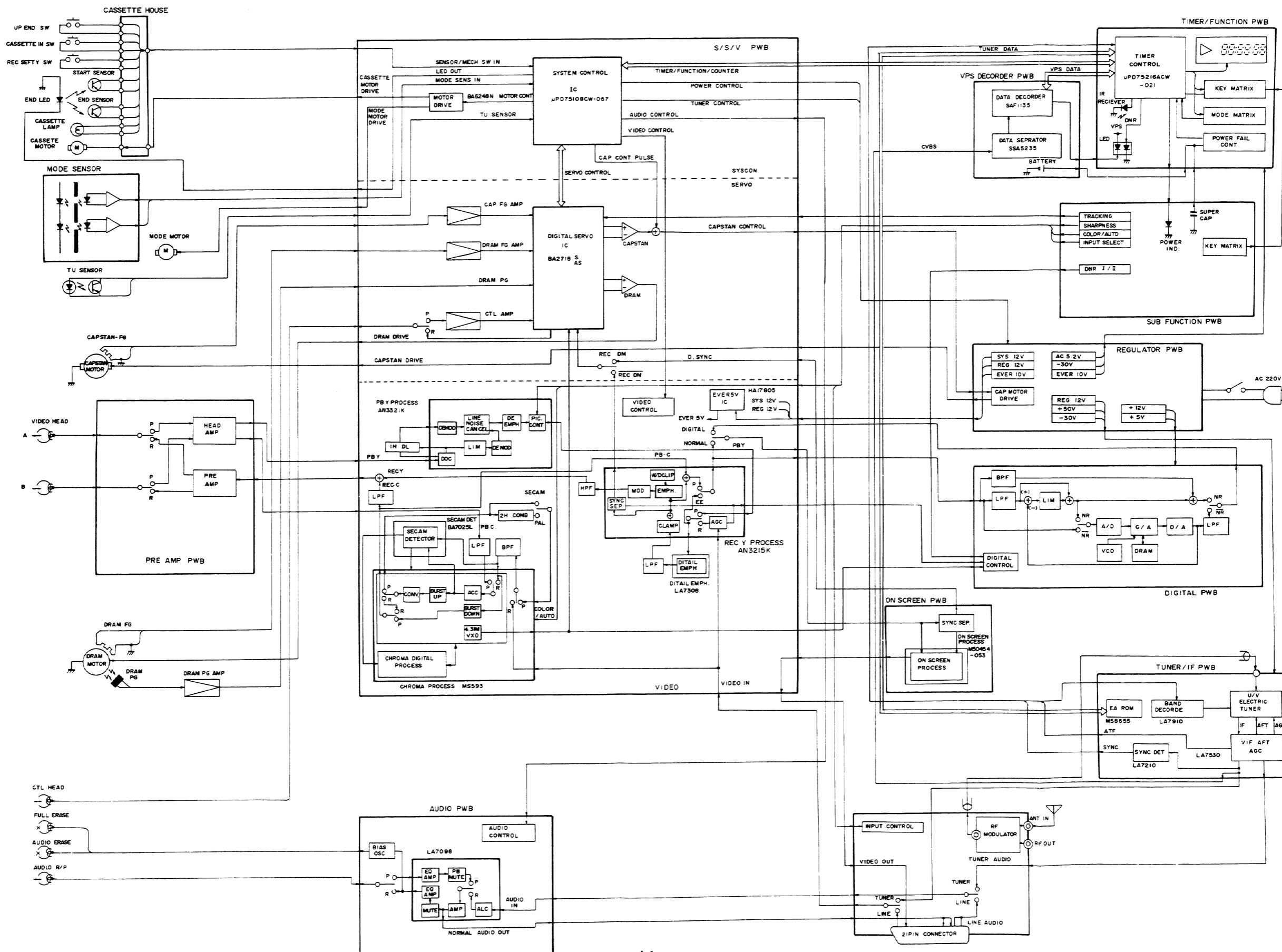
DIGITAL

* This circuit board is viewed from component side.

SECTION 4

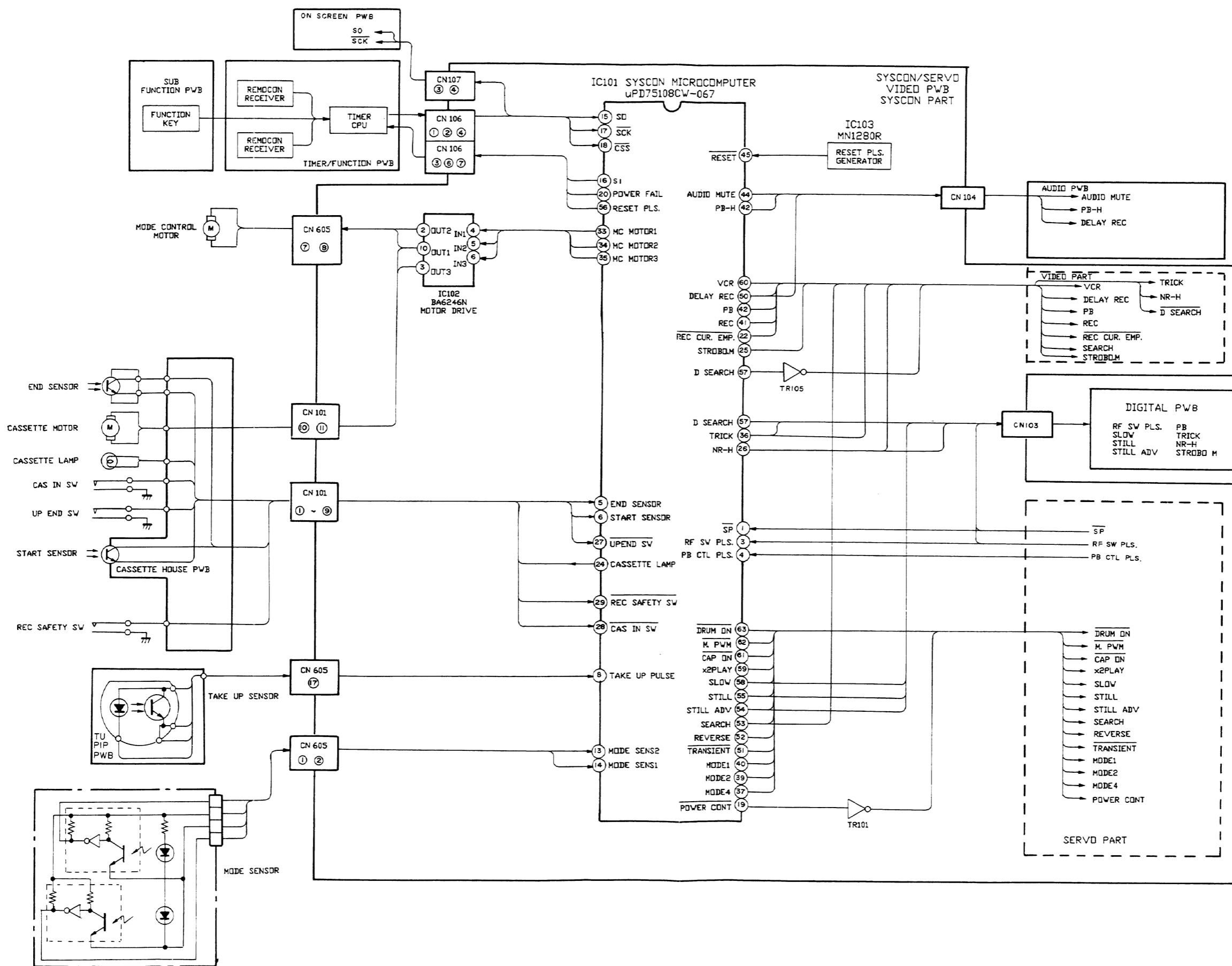
DIAGRAMS AND TIMING CHARTS

1. GENERAL BLOCK DIAGRAM

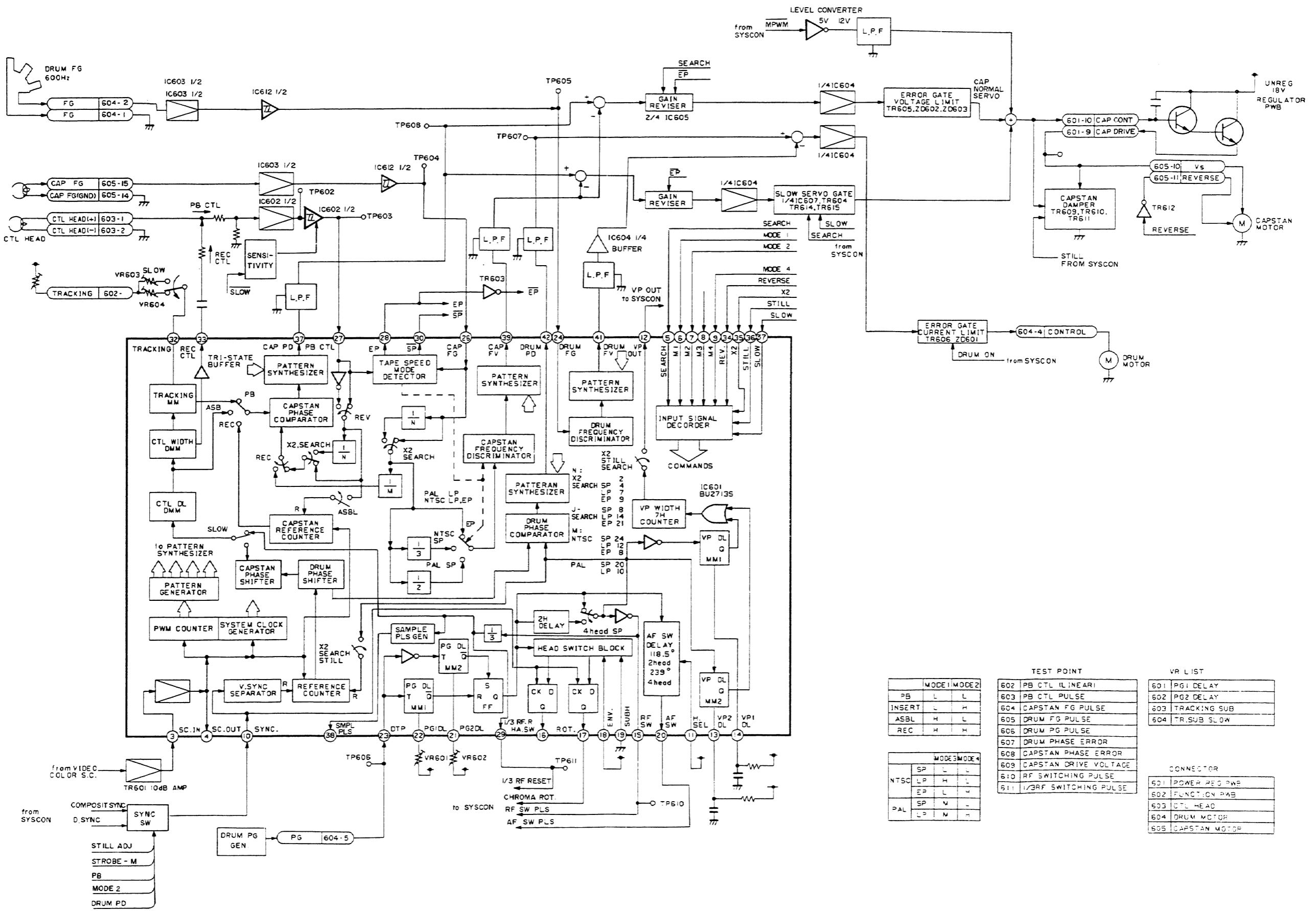


2. BLOCK DIAGRAM

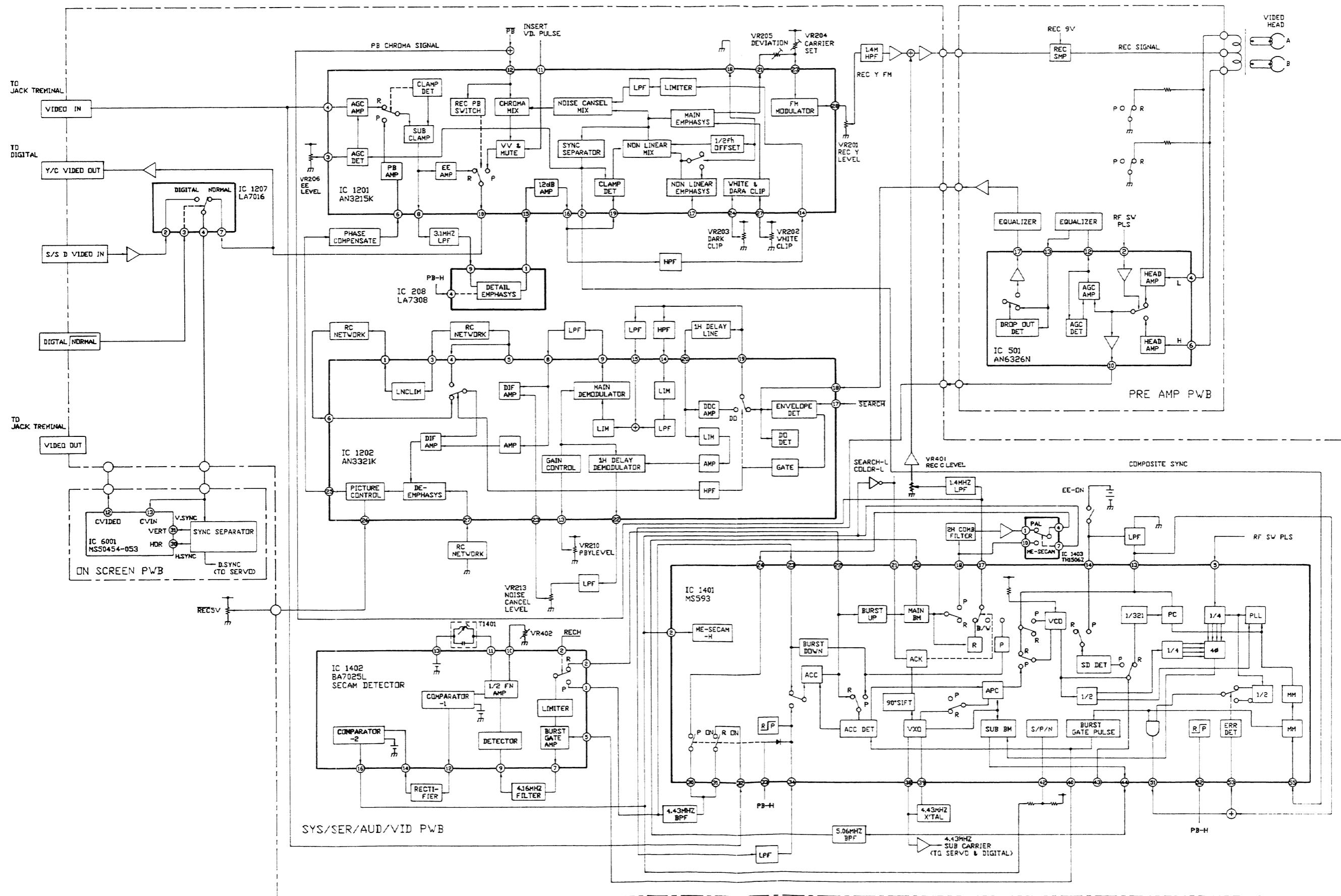
2-1. SYSTEM CONTROL BLOCK DIAGRAM



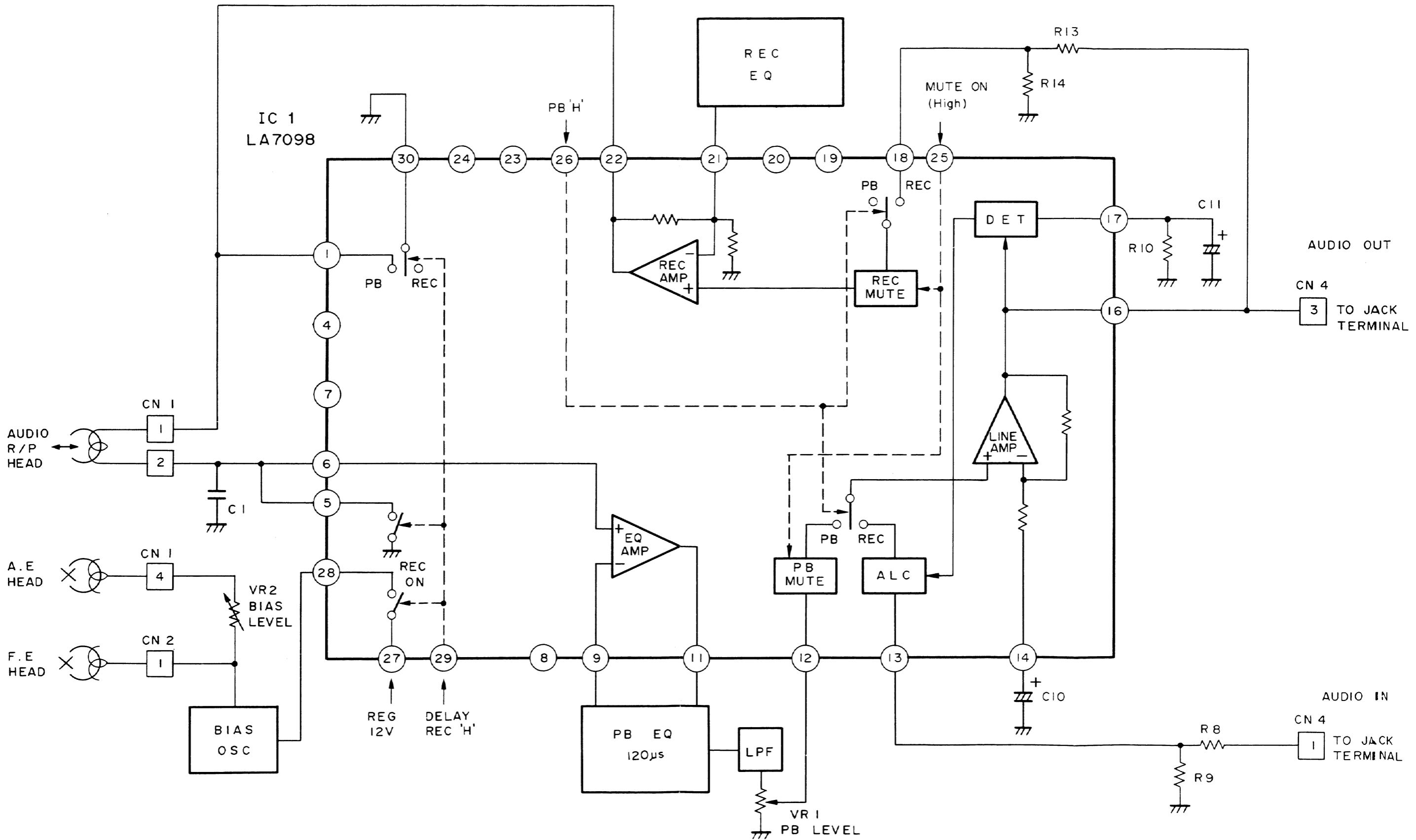
2-2. SERVO CONTROL BLOCK DIAGRAM



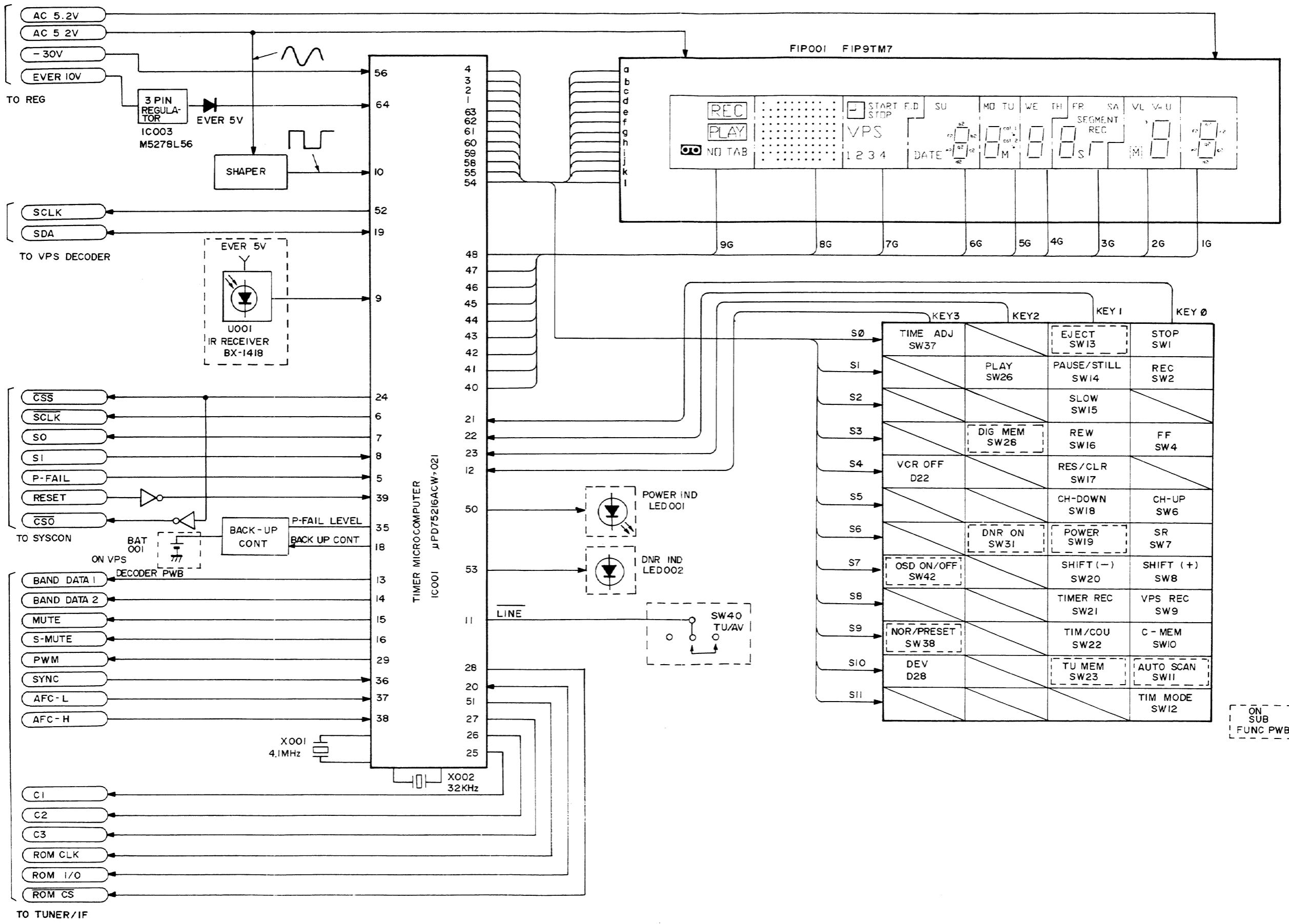
2-3. VIDEO/CHROMA BLOCK DIAGRAM



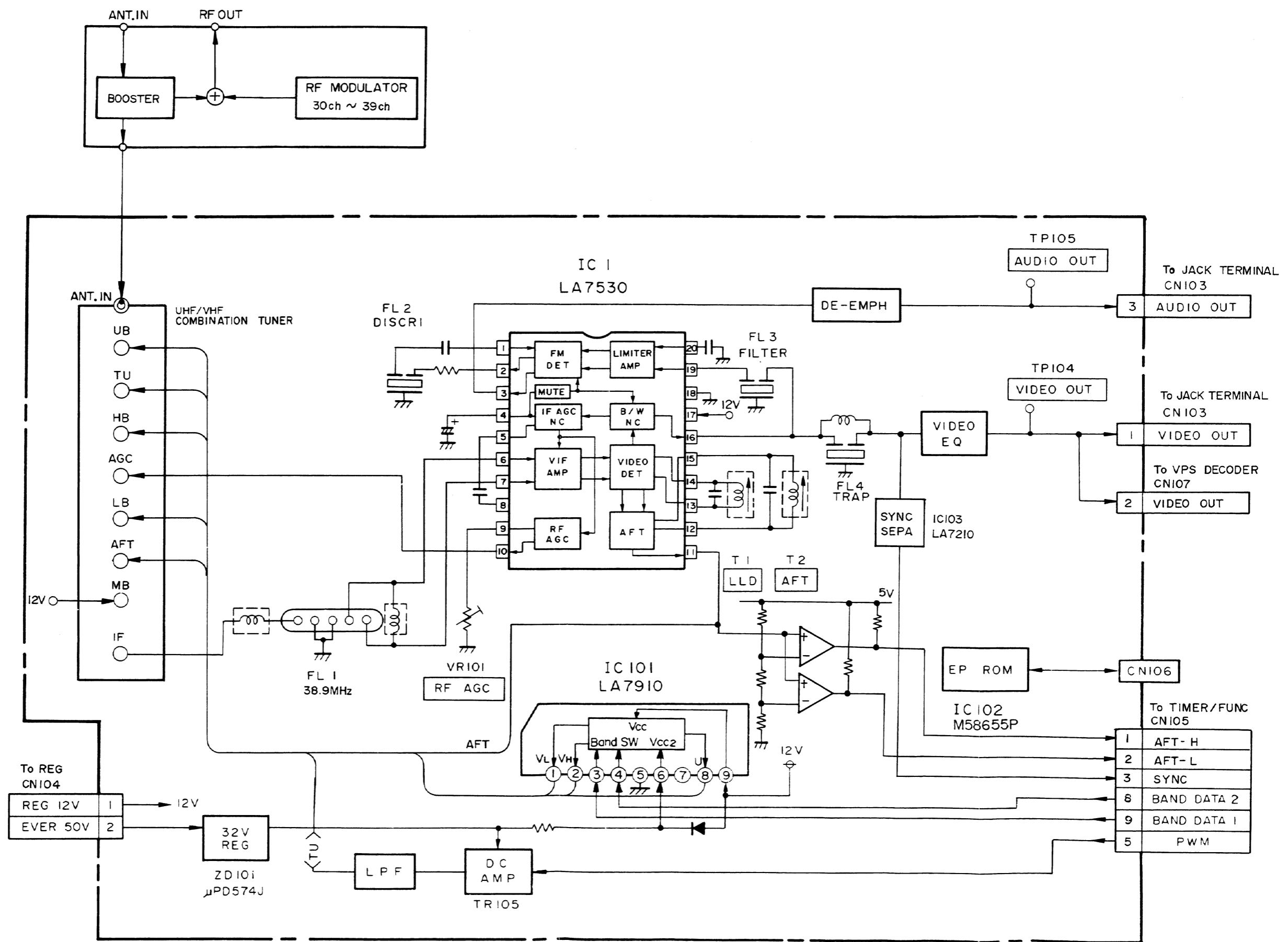
2-4. AUDIO BLOCK DIAGRAM



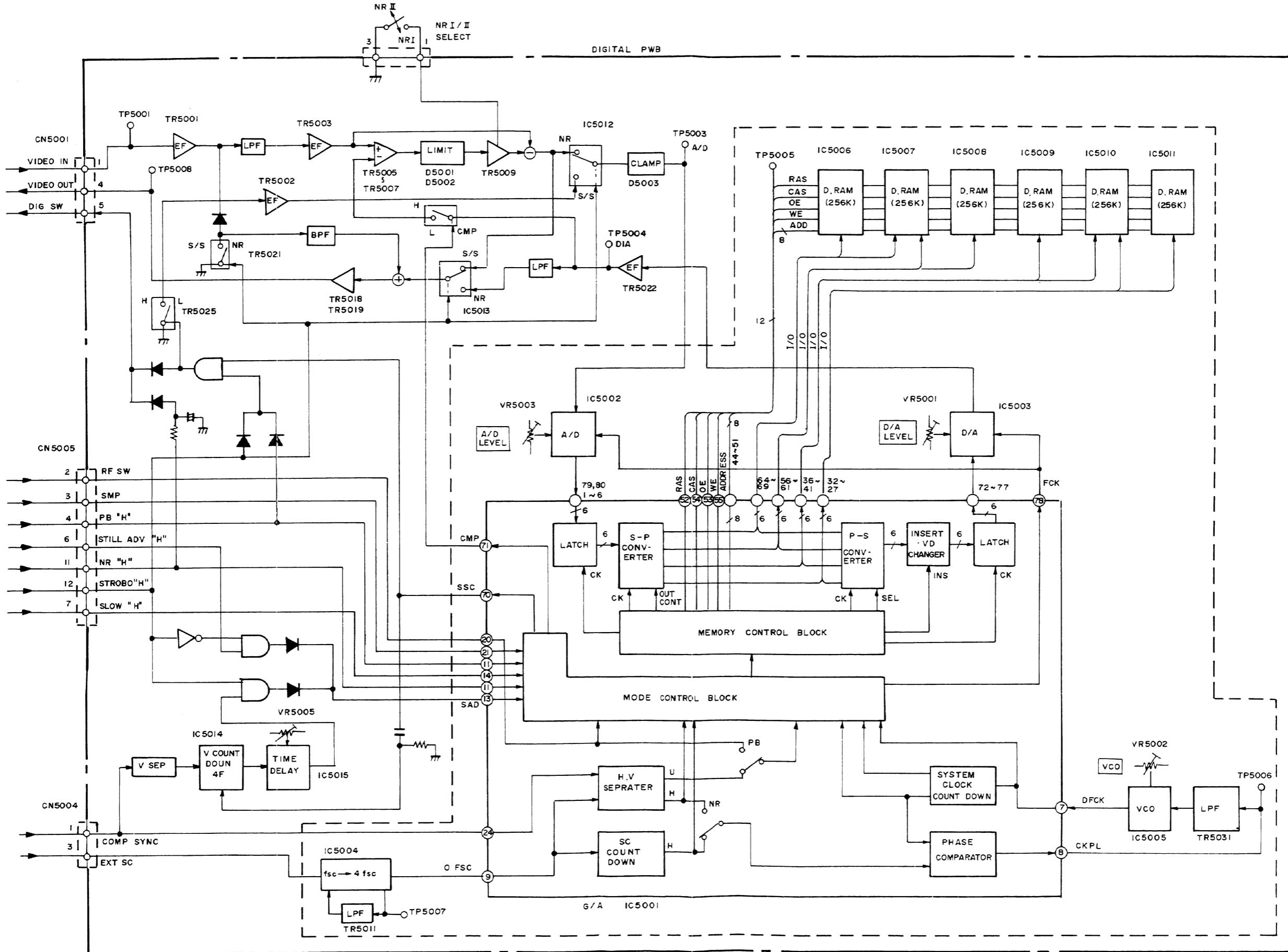
2-5. TIMER FUNCTION BLOCK DIAGRAM



2-6. TUNER/IF BLOCK DIAGRAM

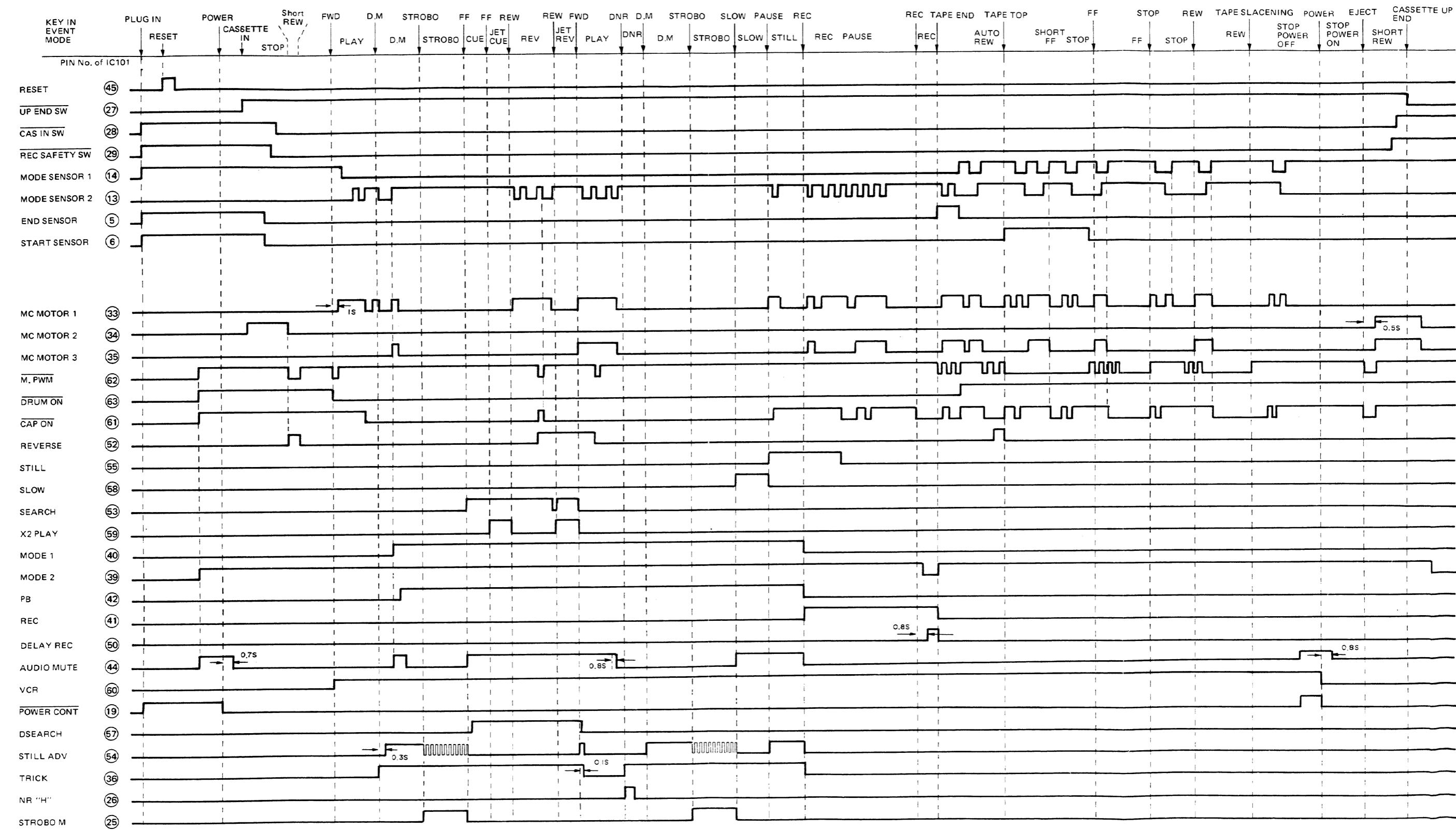


2-7. DIGITAL BLOCK DIAGRAM

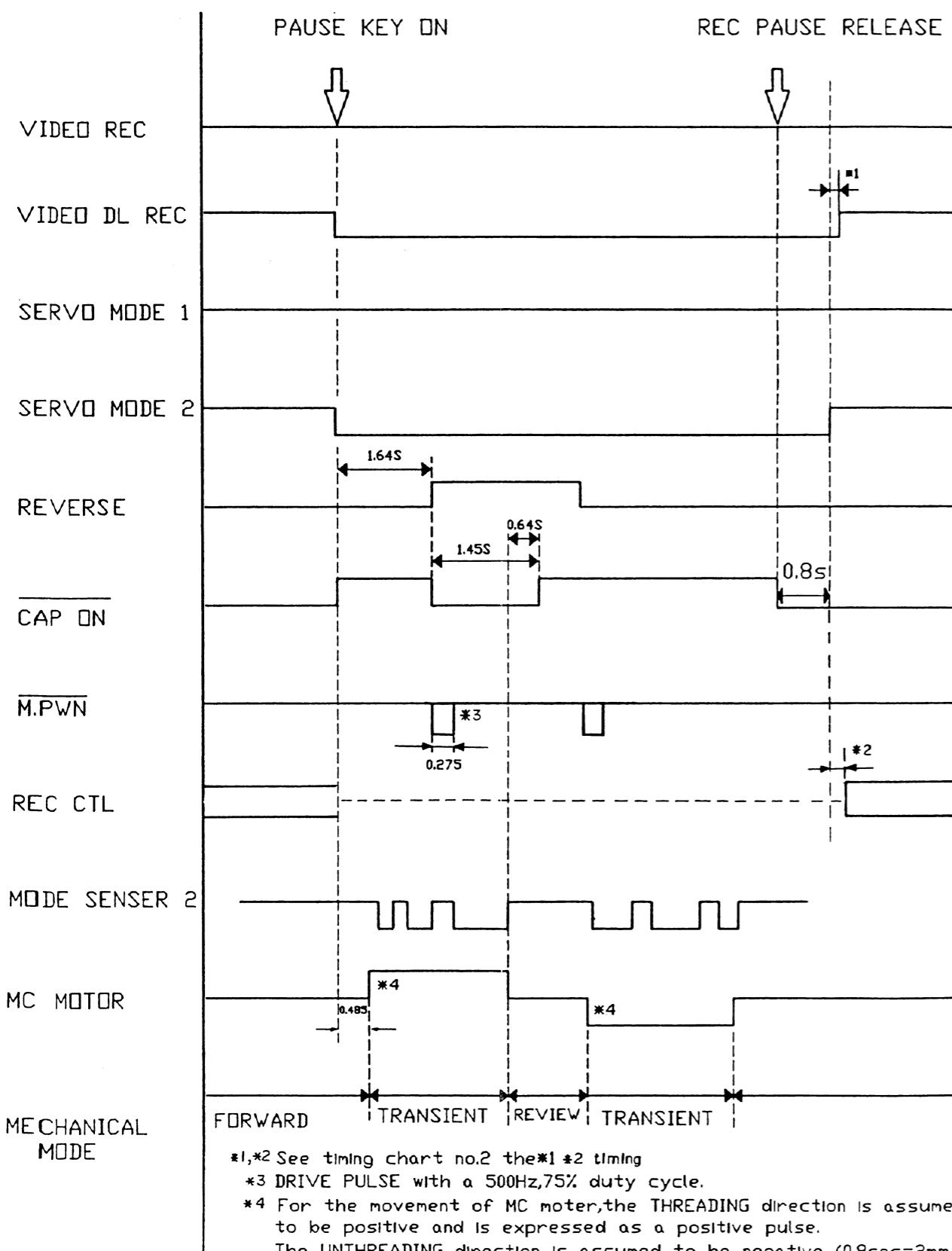


3. TIMING CHART

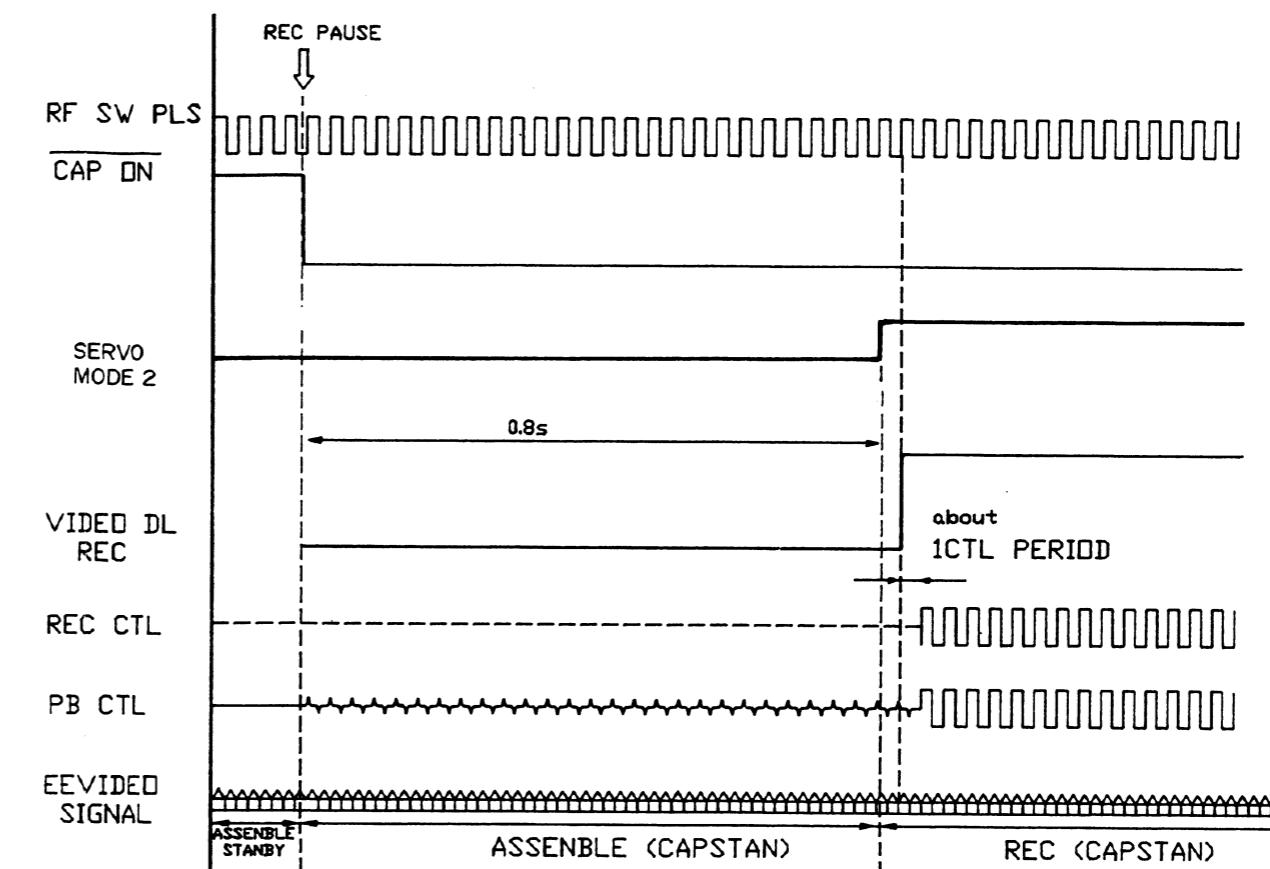
3-1. SYSTEM CONTROL TIMING CHART



3-2. ASSEMBLE RECORD TIMING CHART 1

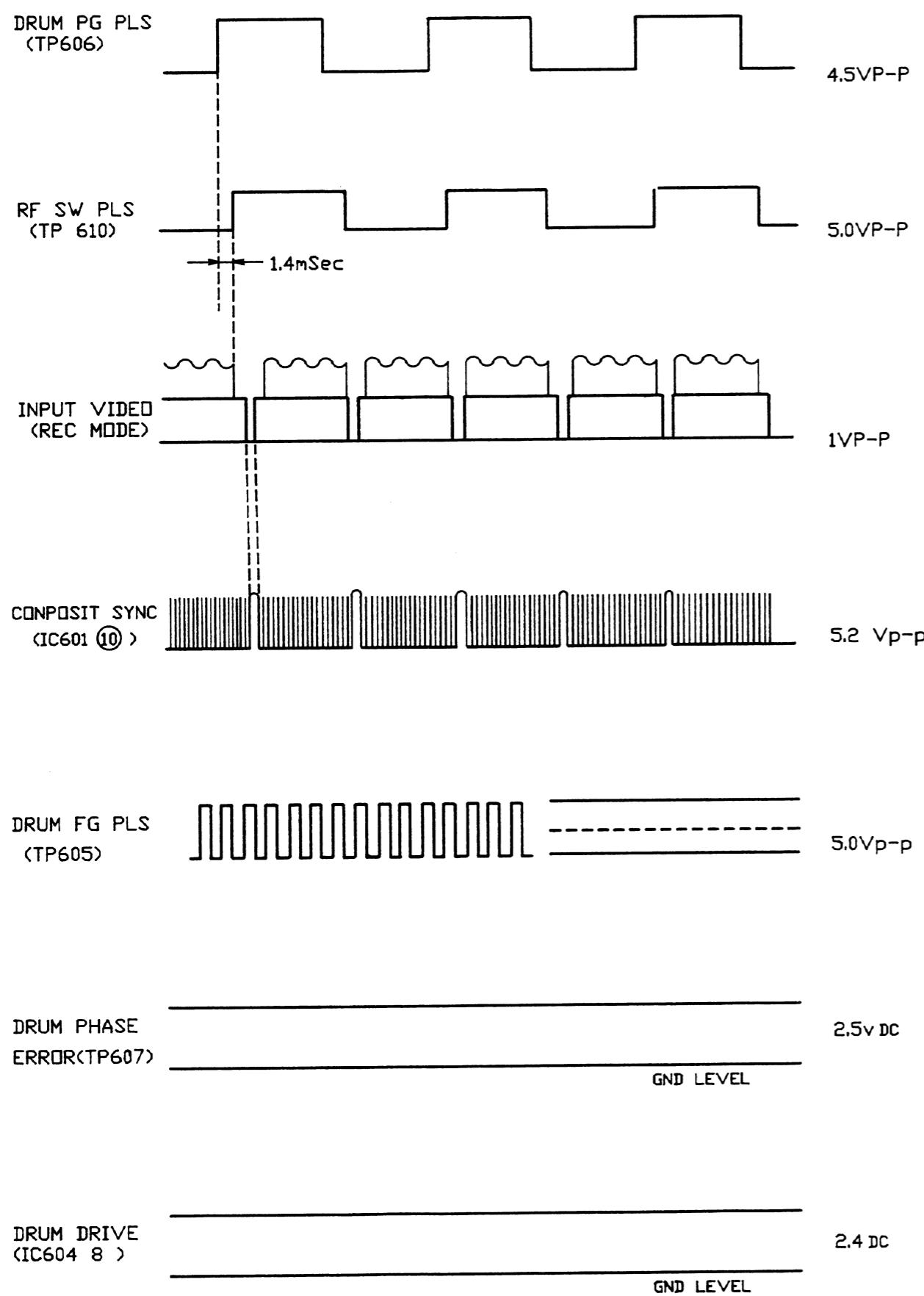


3-3. ASSEMBLE RECORD TIMING CHART 2

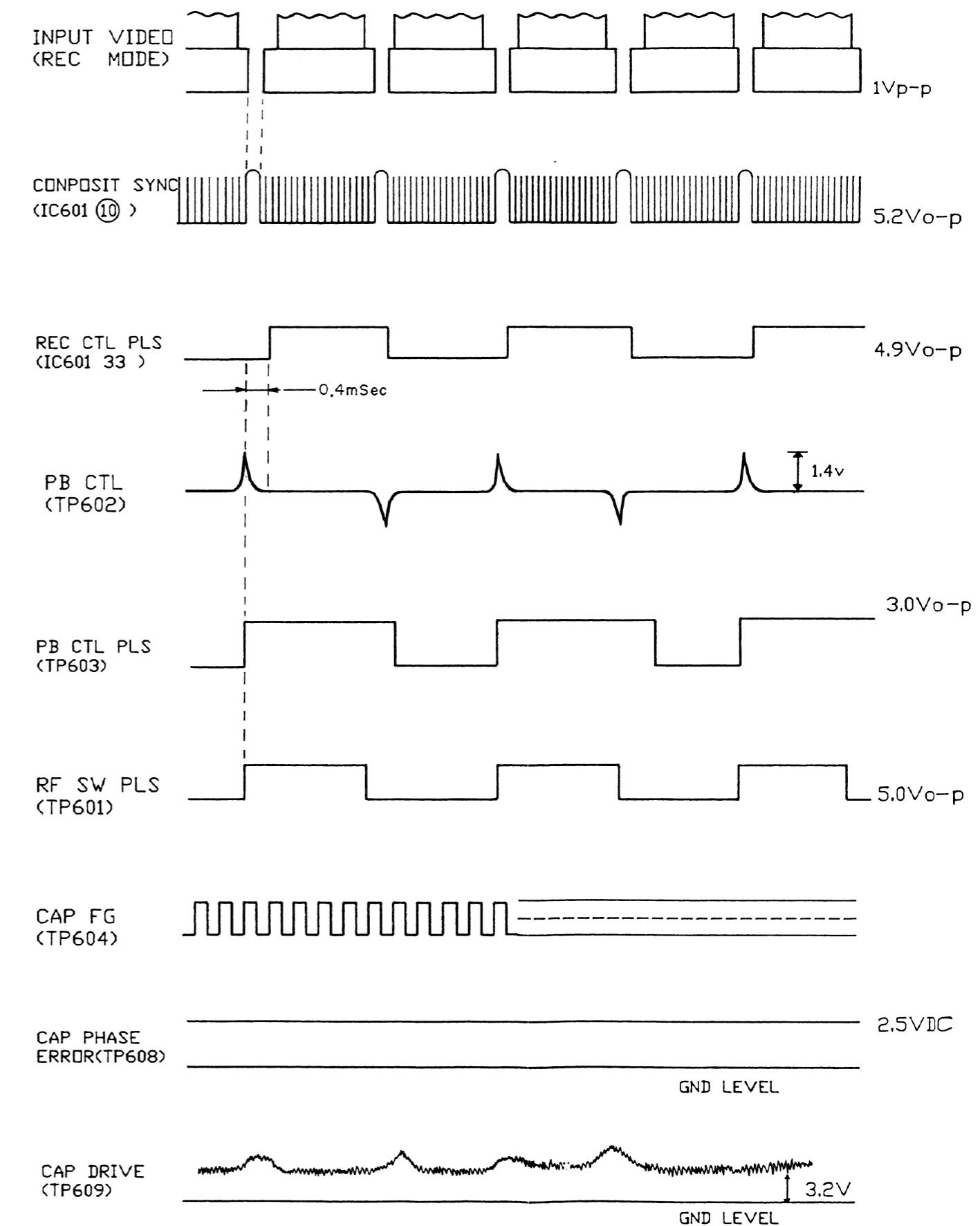


After the REC PURES. is released, CAP ON is set low. Then the CAPSTAN MOTOR starts rotating and the phase between REC CTL (VSYNC of the VIDEO SIGNAL) and PB CTL is matched.
The connection operation is completed after about 0.8 second (about 24 frames).
MODE 2 is set high and SERVO enters REC operation state.
The first REC CTL pulse is not recorded, the pulse is recorded from the leading edge of the second CTL pulse.
In addition, DL REC of the VIDEO is output synchronizing with the leading edge of RF SW PLS so that the joint part of VIDEO TRACK can be positioned within the vertical blanking.
DL REC is a control signal for the REC AMP recording current.

3-4. DRUM SERVO TIMING CHART 1

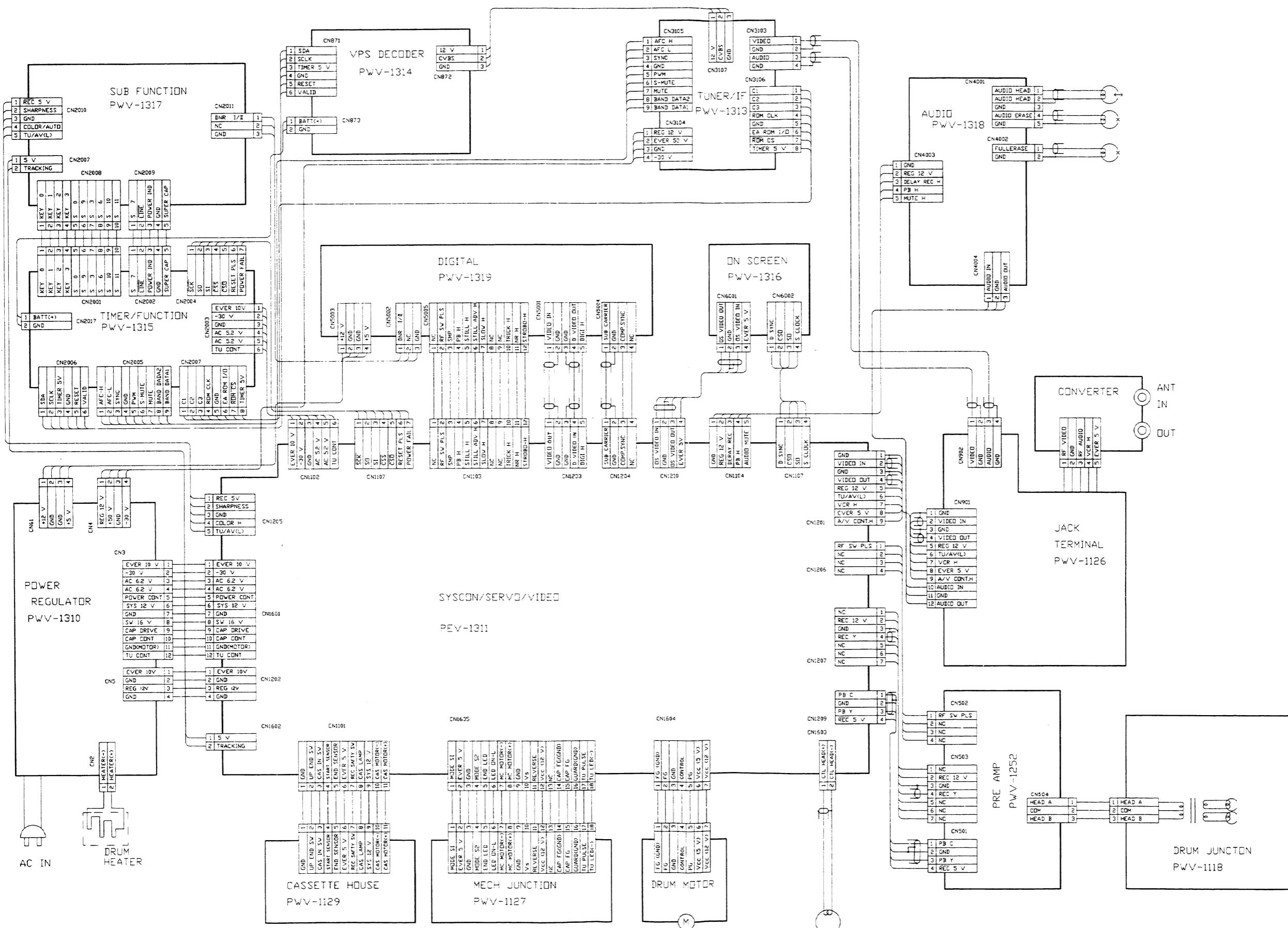


3-5. CAPSTAN SERVO TIMING CHART 2

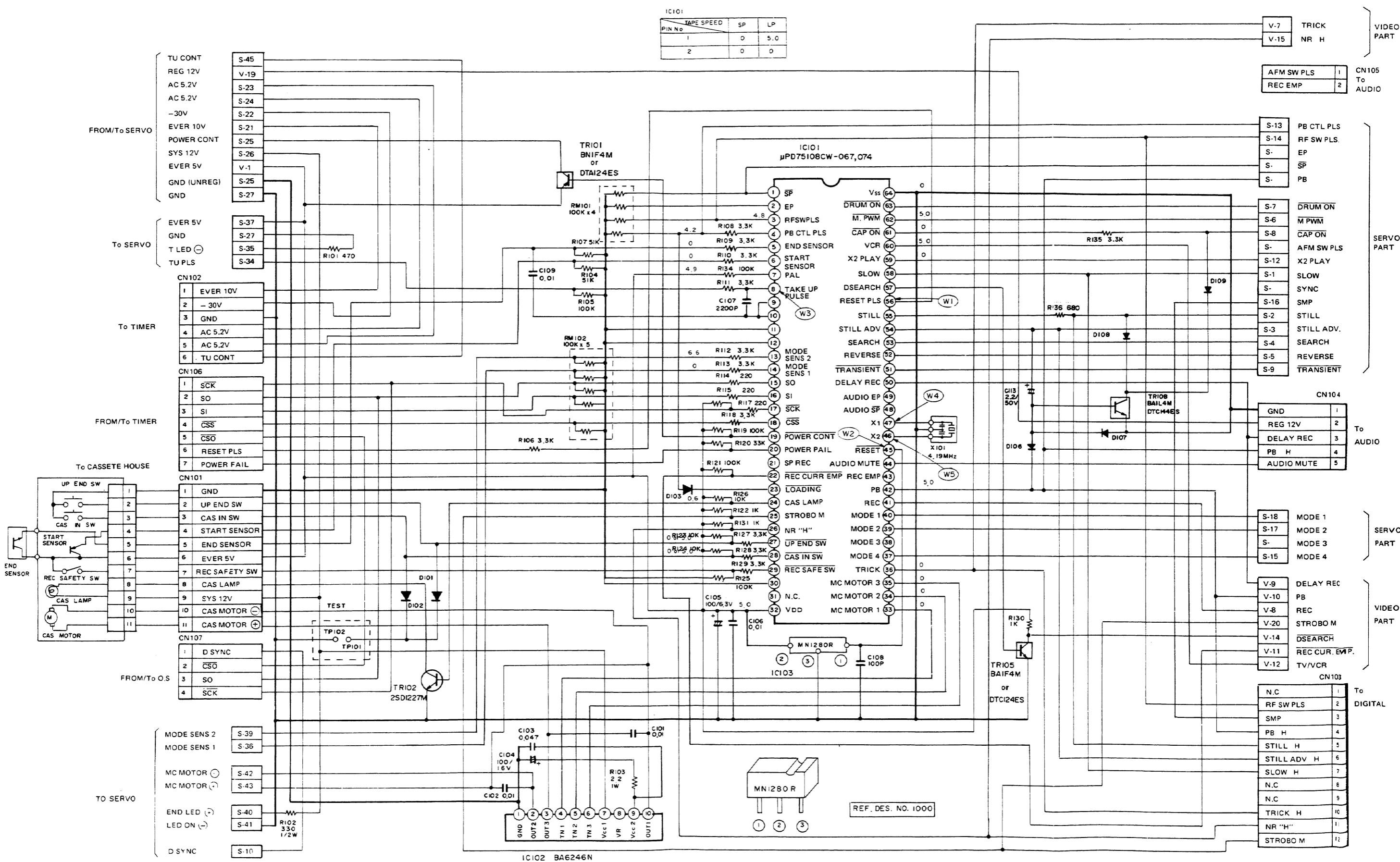


4. SCHEMATIC/CIRCUIT BOARD DIAGRAMS

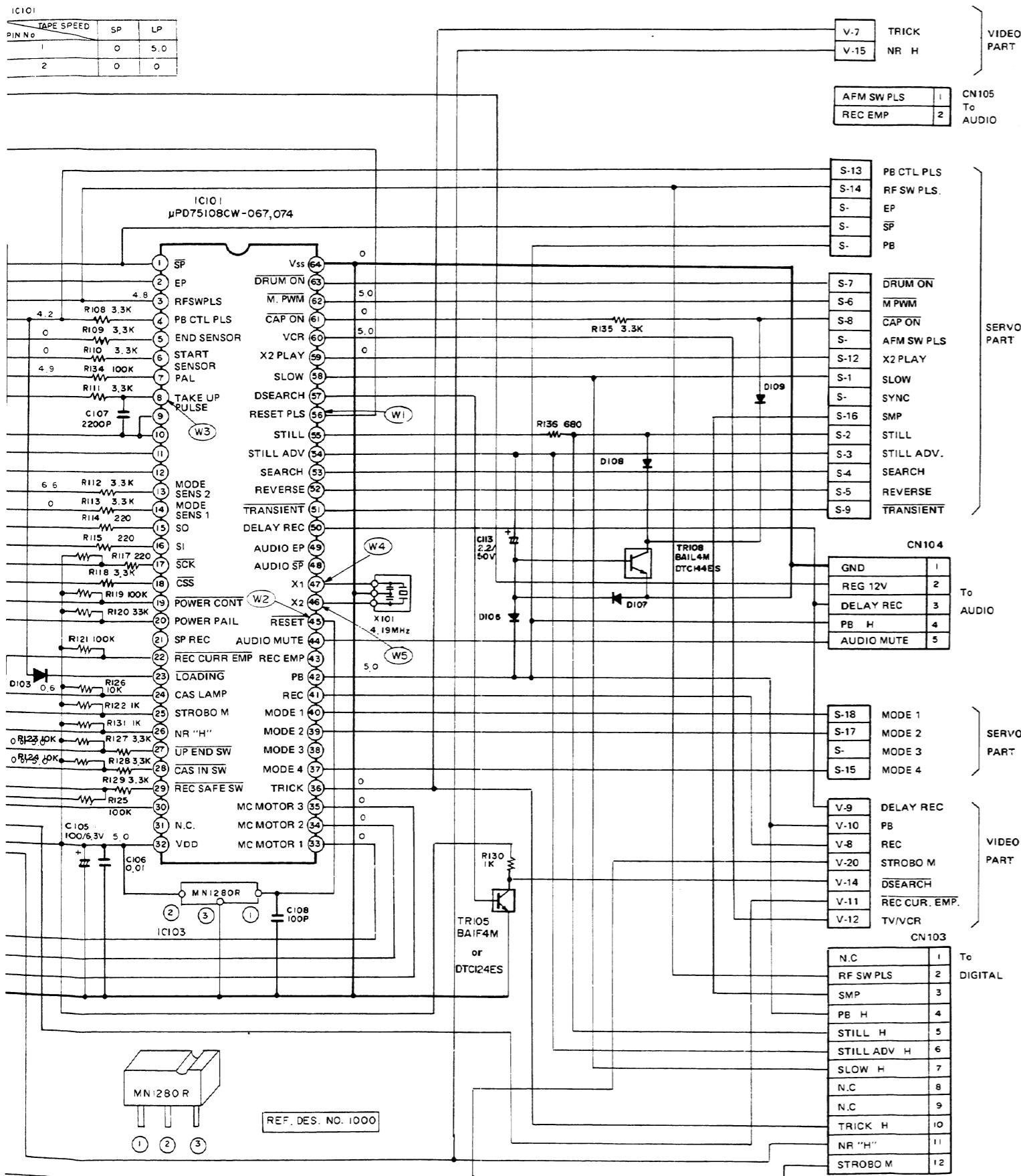
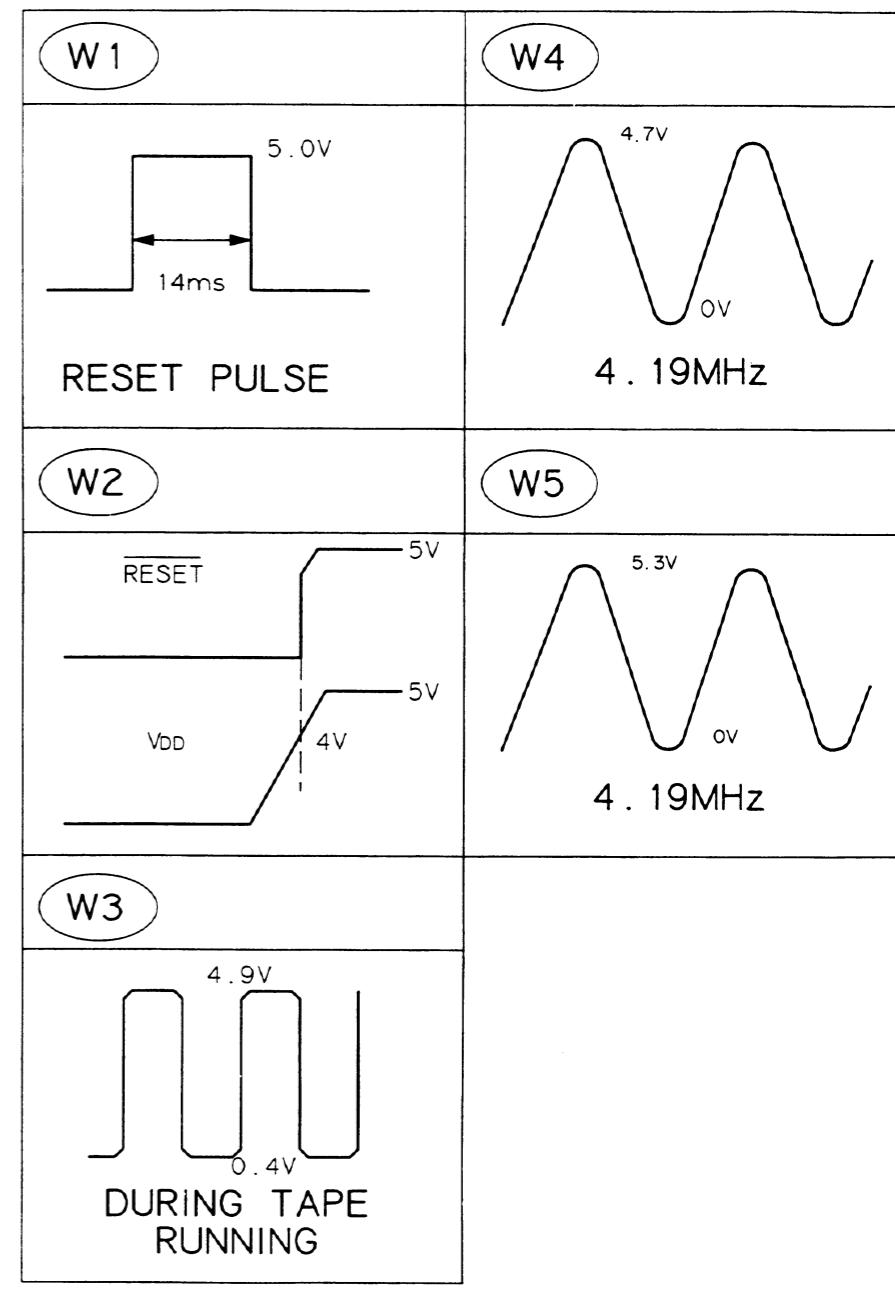
4-1. FRAME WIRING



4-2. SYSCON SCHEMATIC DIAGRAM



SYS CON WAVEFORMS



PIN No	PLAY	REC	I REC PAUSE	I STOP
(4) MODE 1	0	4.9V	4.9V	4.9V
(5) MODE 2	0	4.9V	0	0

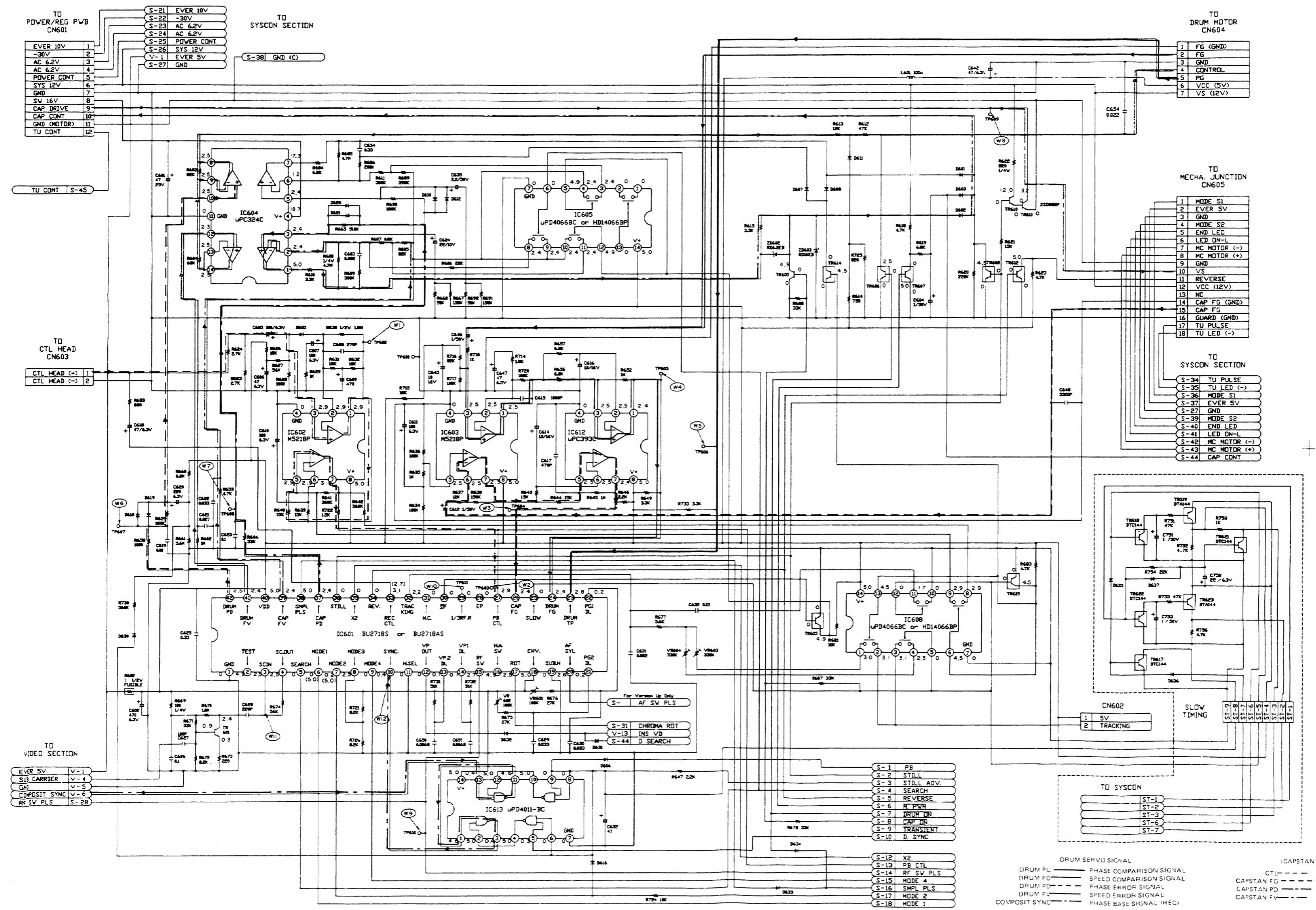
PIN No	REC SPEED SW
(1)	SP 1 LP EP
(2)	PB MODE SP 0 4.8V 4.8V
(3)	PB MODE EP 0 0 4.8V
(4)	MODE 3 0 4.9V 0
(5)	MODE 4 0 0 4.9V

MOTOR 1,2,3 OUT MODE				
MODE	CAS	MODE	CAS	MODE
0	0	0	STOP	STOP
4.8V	C	0	STOP	FORWARD
4.8V	0	4.8V	STOP	REVERSE
0	4.8V	C	CAS.DOWN	STOP
0	4.8V	4.8V	CAS.UP	STOP

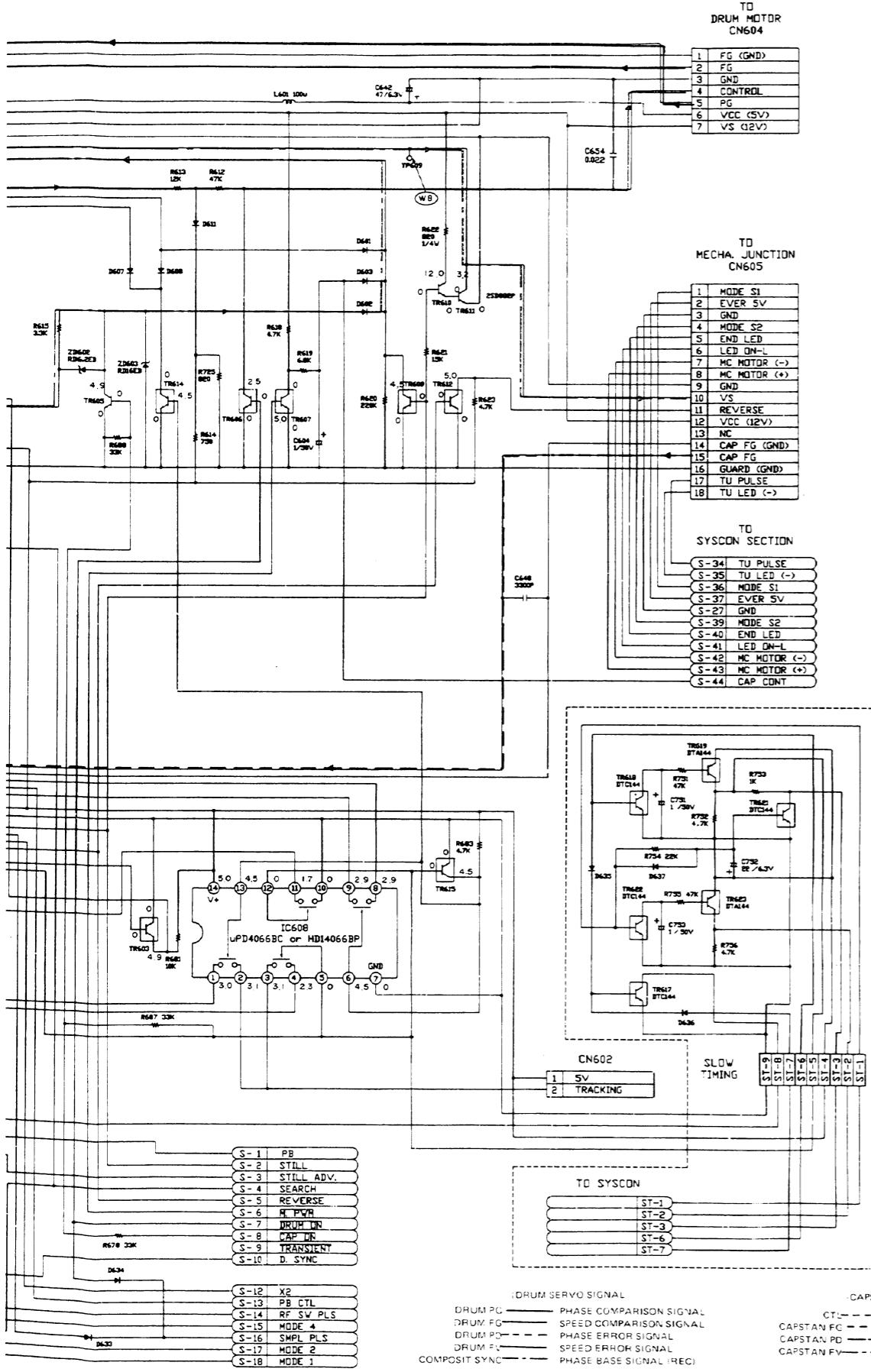
(NOTE)

1. IC101 μ PD75108CW-067 is used in MP0001 up to 9500.
2. IC101 μ PD75108CW-074 is used in MP9501 and up. In the same way as the change was made to IC101 CW-074, the following parts are deleted.
 - Transistor TR108 BA1L4M or DTC144ES
 - Diodes D106, D107, D108, D109
 - Capacitor C113 2.2u, 50V
 - Resistors R135, R136
(Red shaded parts)

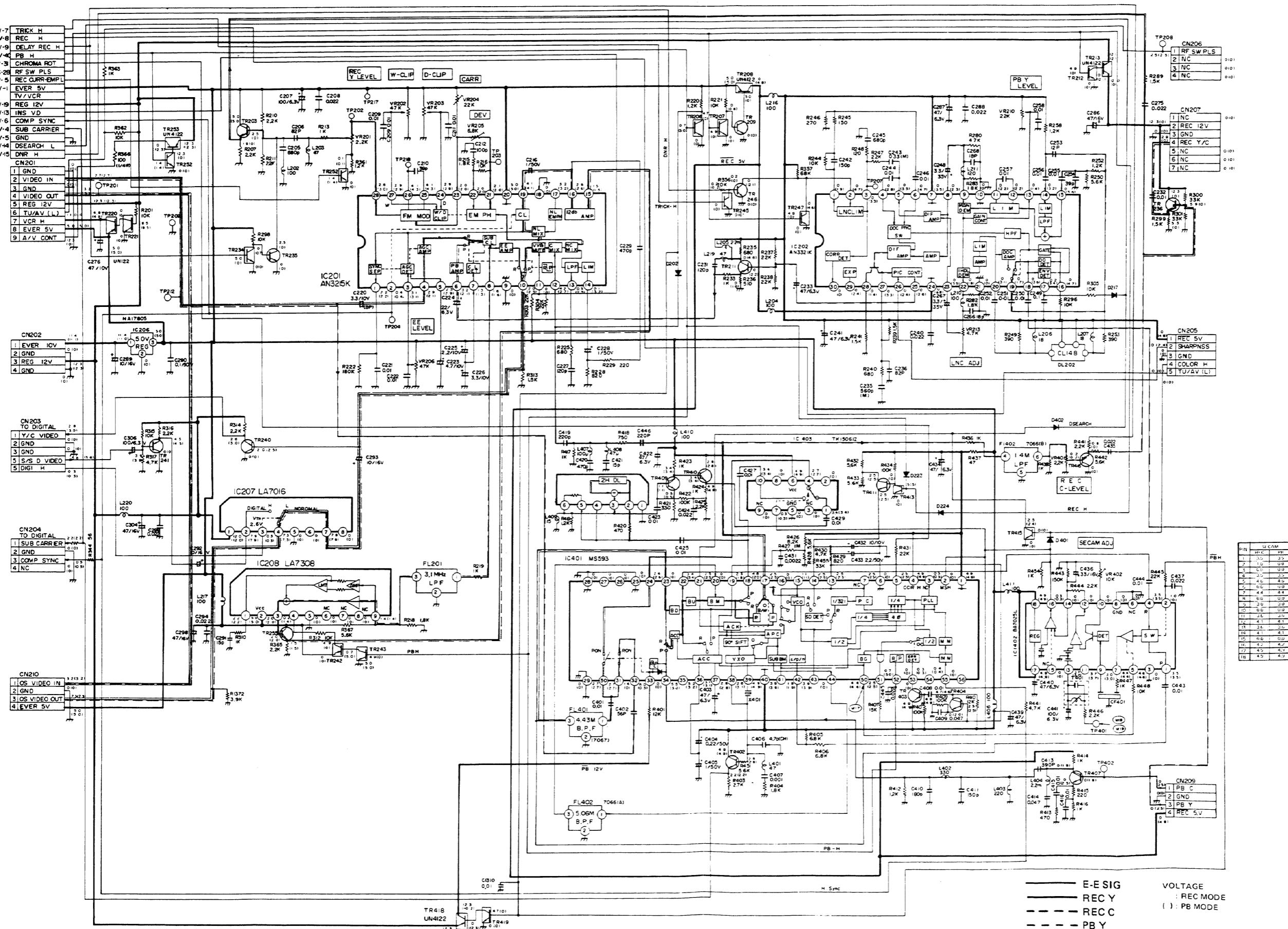
4-3. SERVO SCHEMATIC DIAGRAM



SERVO WAVEFORMS

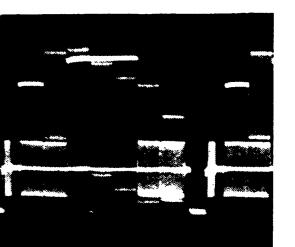


4-4. VIDEO/CHROMA SCHEMATIC DIAGRAM

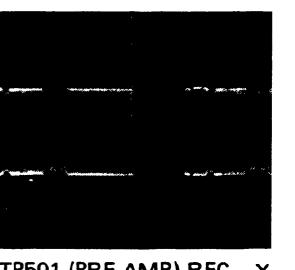


VIDEO WAVEFORMS

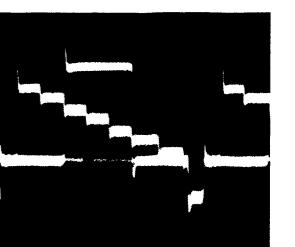
W1



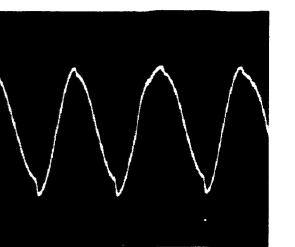
W7



W13



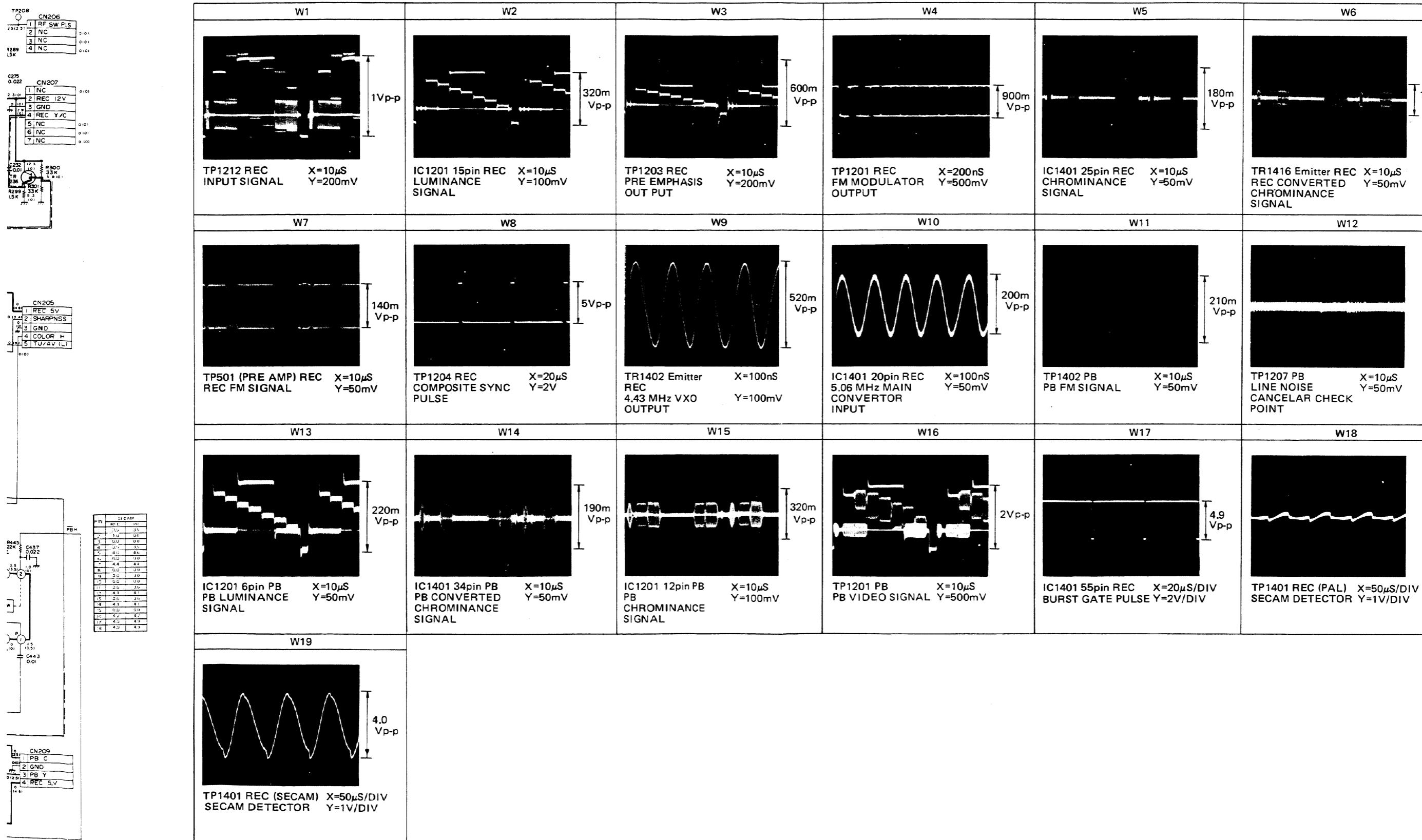
W19



E-E SIG
REC Y
--- REC C
--- PB Y
--- PB C

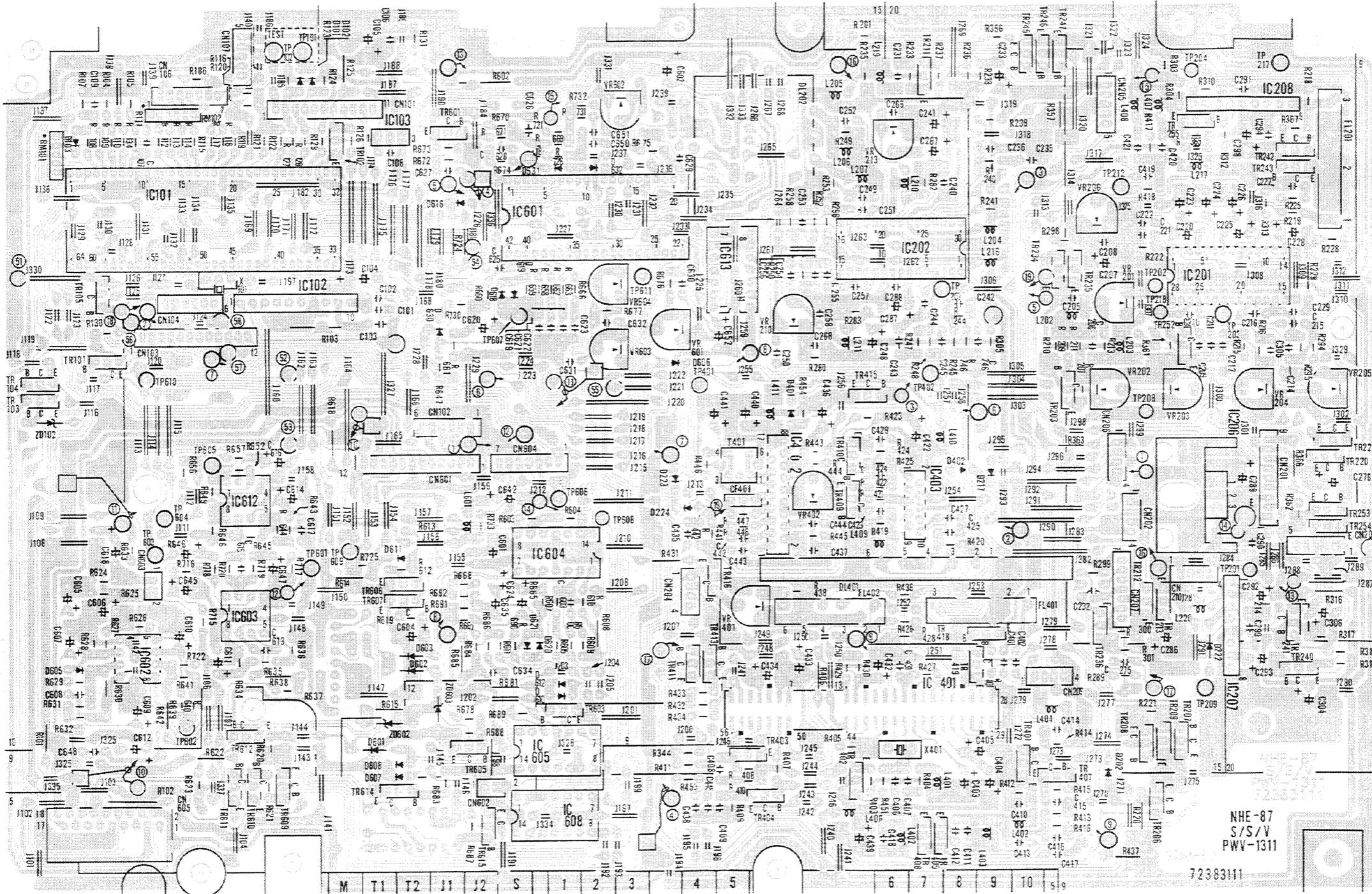
VOLTAGE
REC MODE
() : PB MODE

VIDEO WAVEFORMS

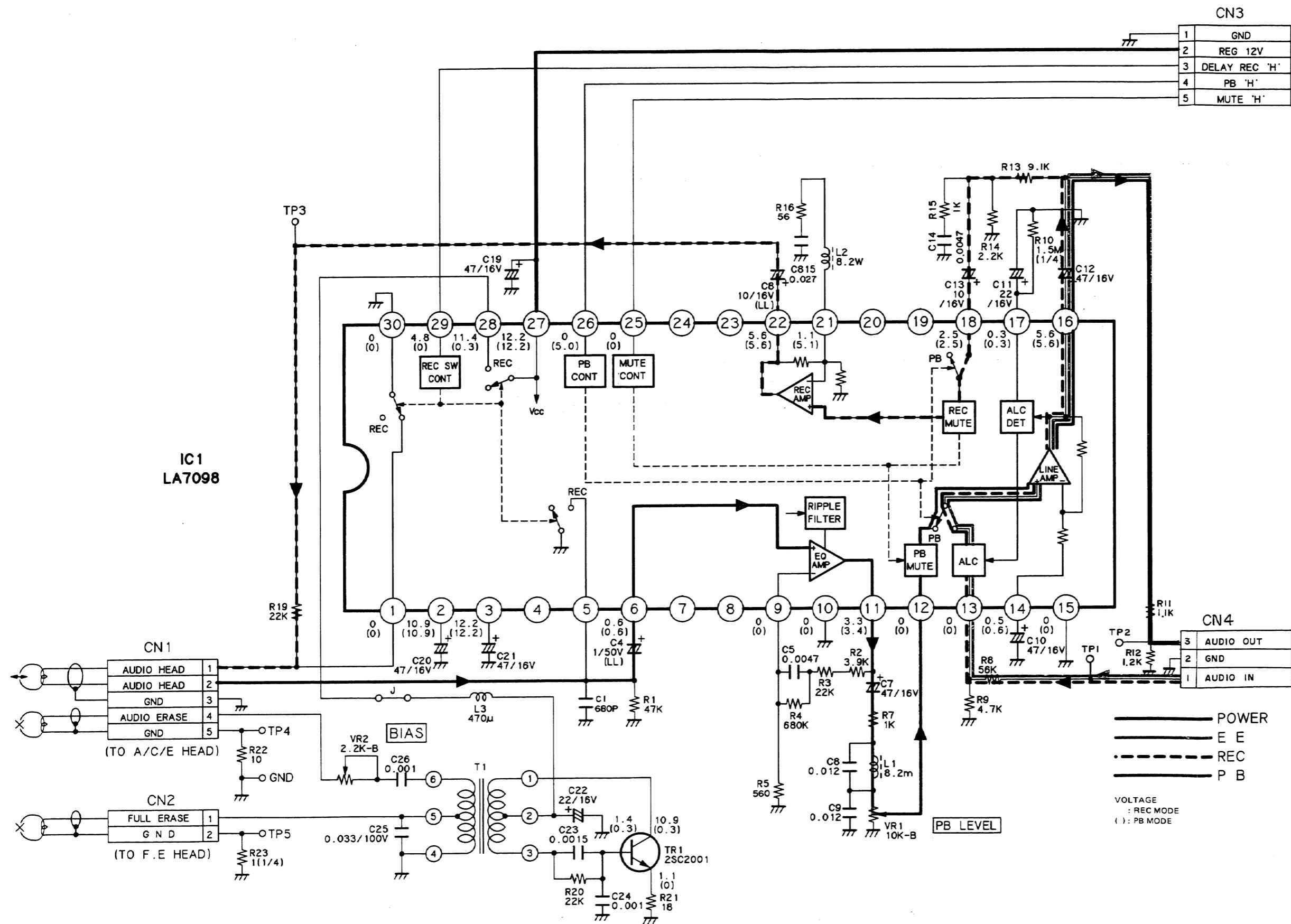


VOLTAGE
REC MODE
() : PB MODE

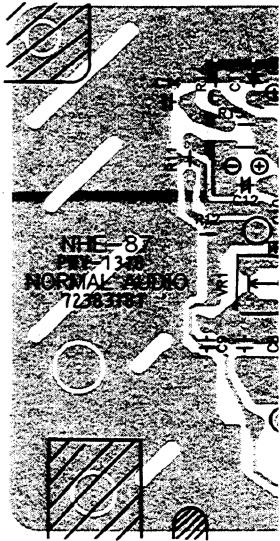
4-5. SYS/CON/SERVO/VIDEO CIRCUIT BOARD



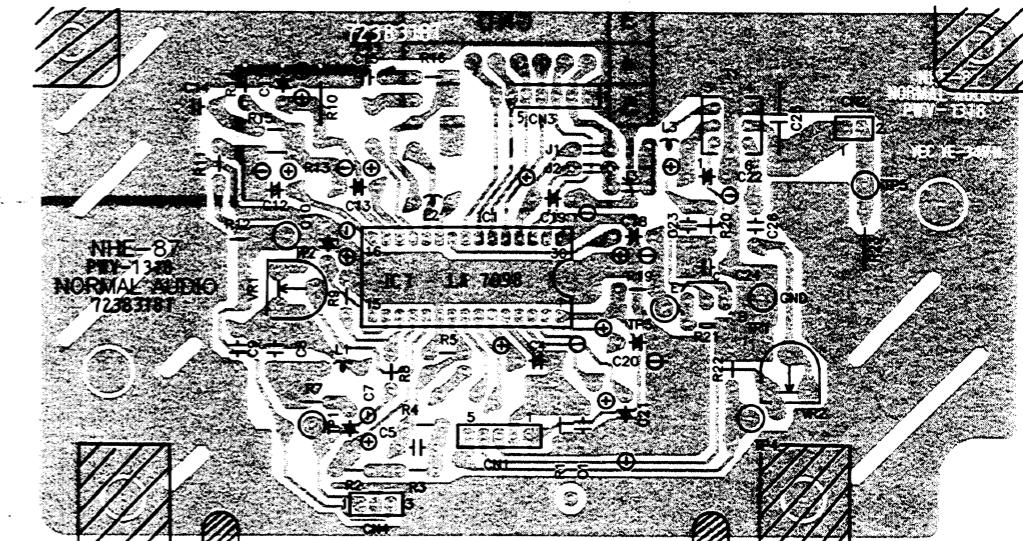
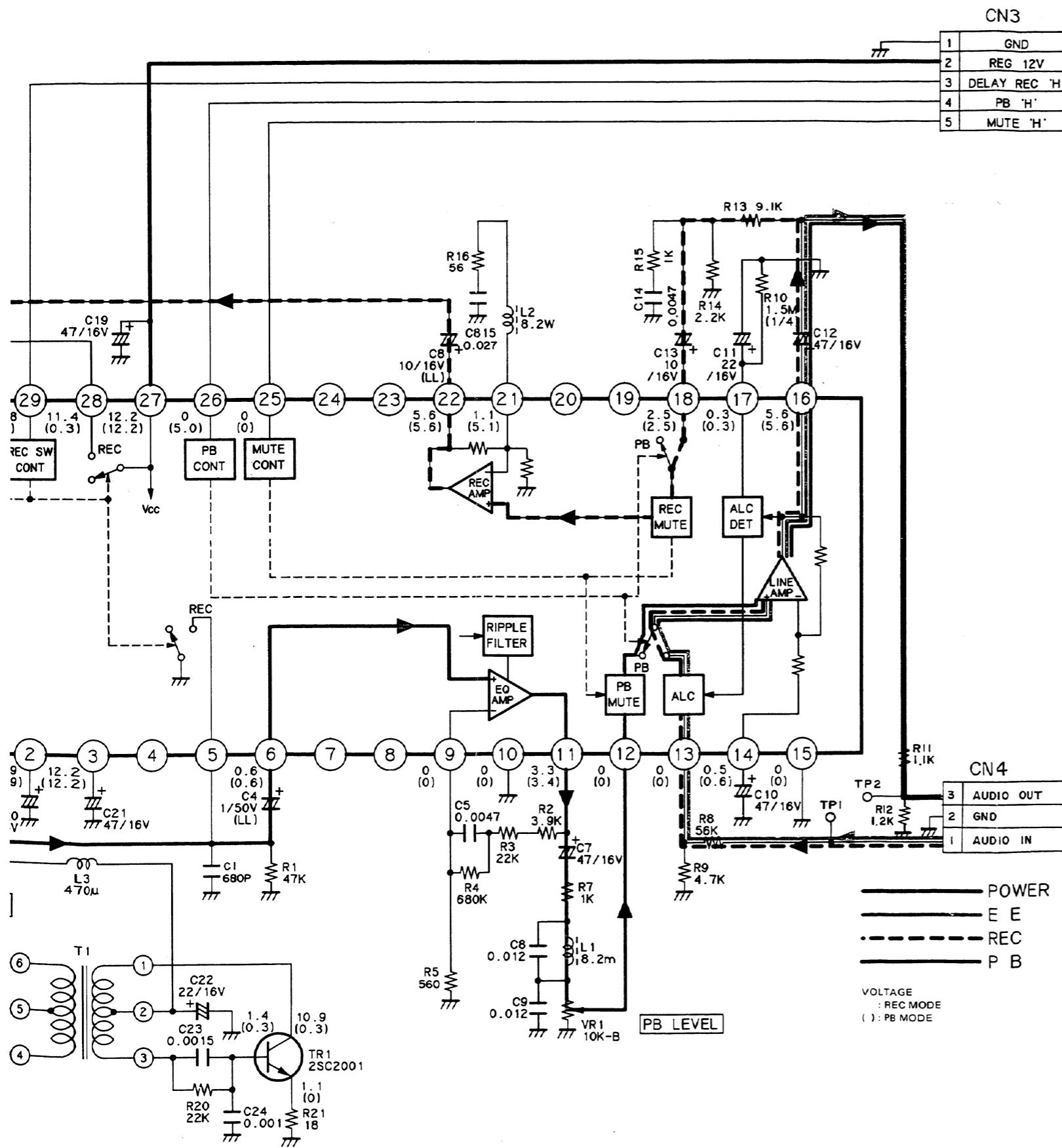
4-6. AUDIO SCHEMATIC DIAGRAM



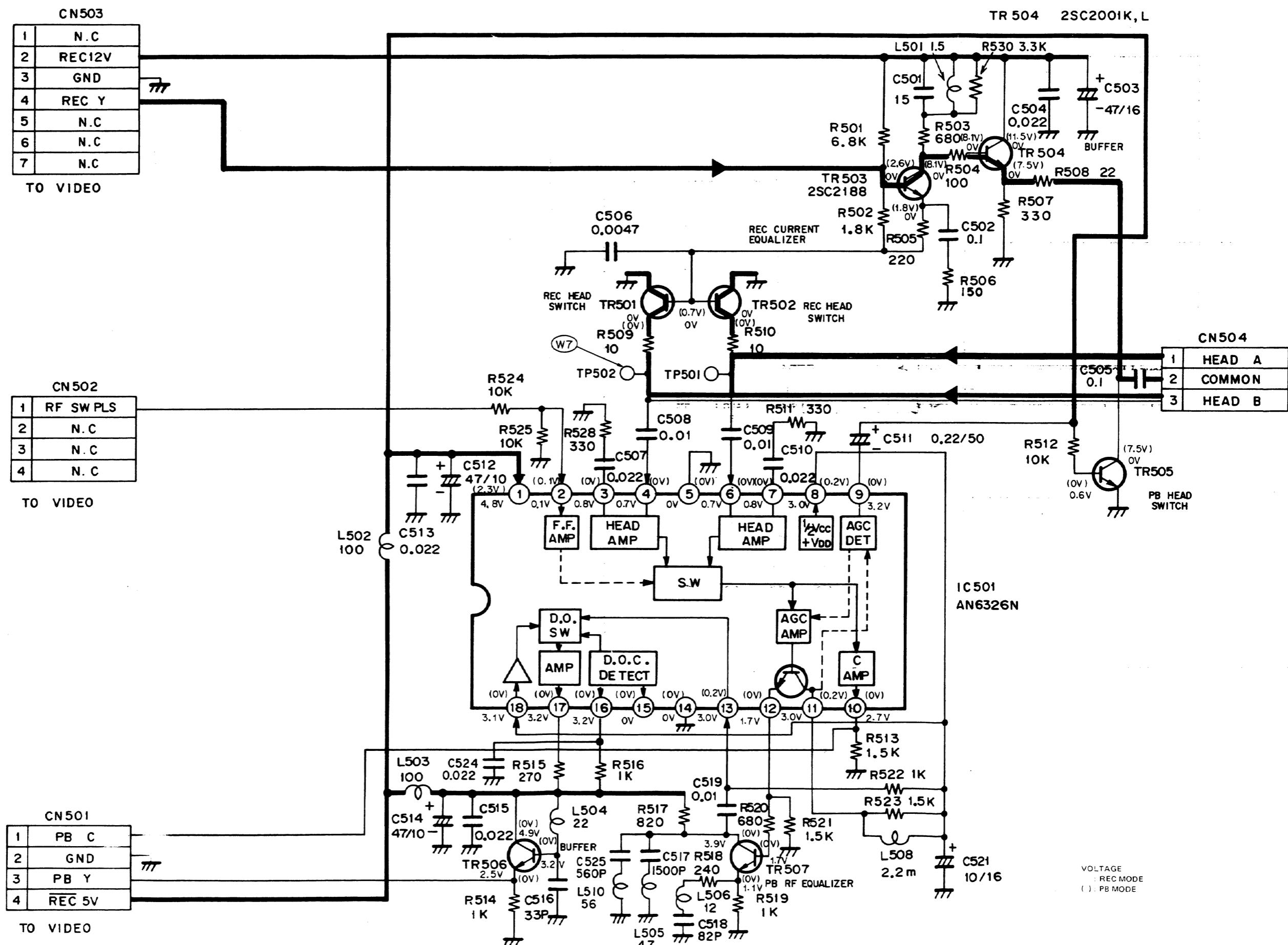
4-7. AUDIO CIRC



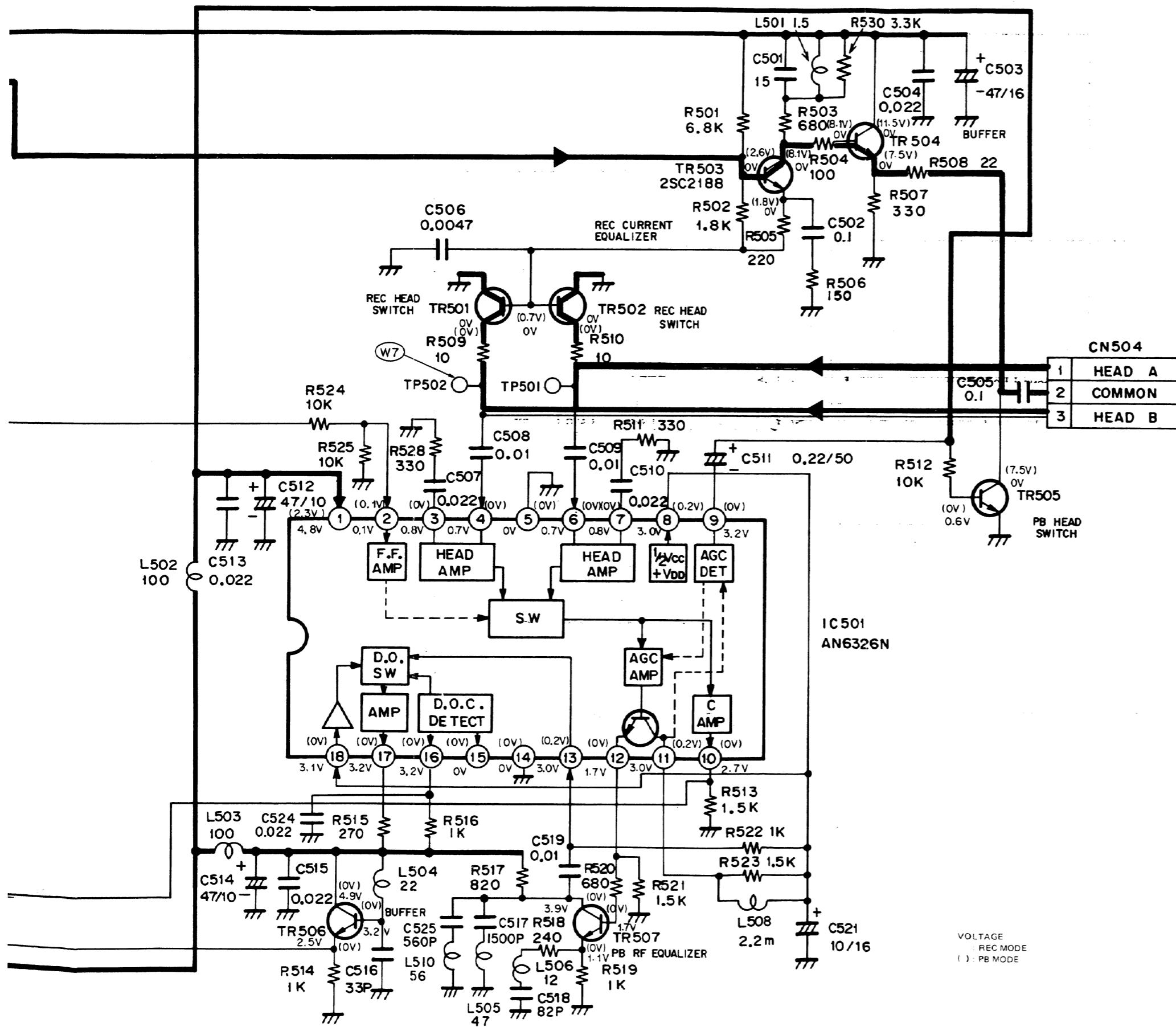
4-7. AUDIO CIRCUIT BOARD



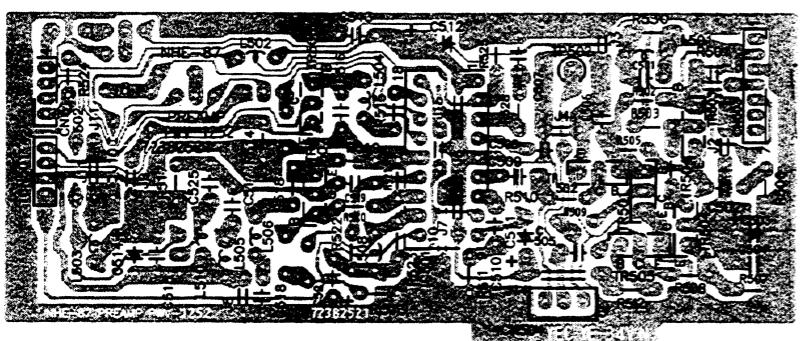
4-8. PRE AMP SCHEMATIC DIAGRAM



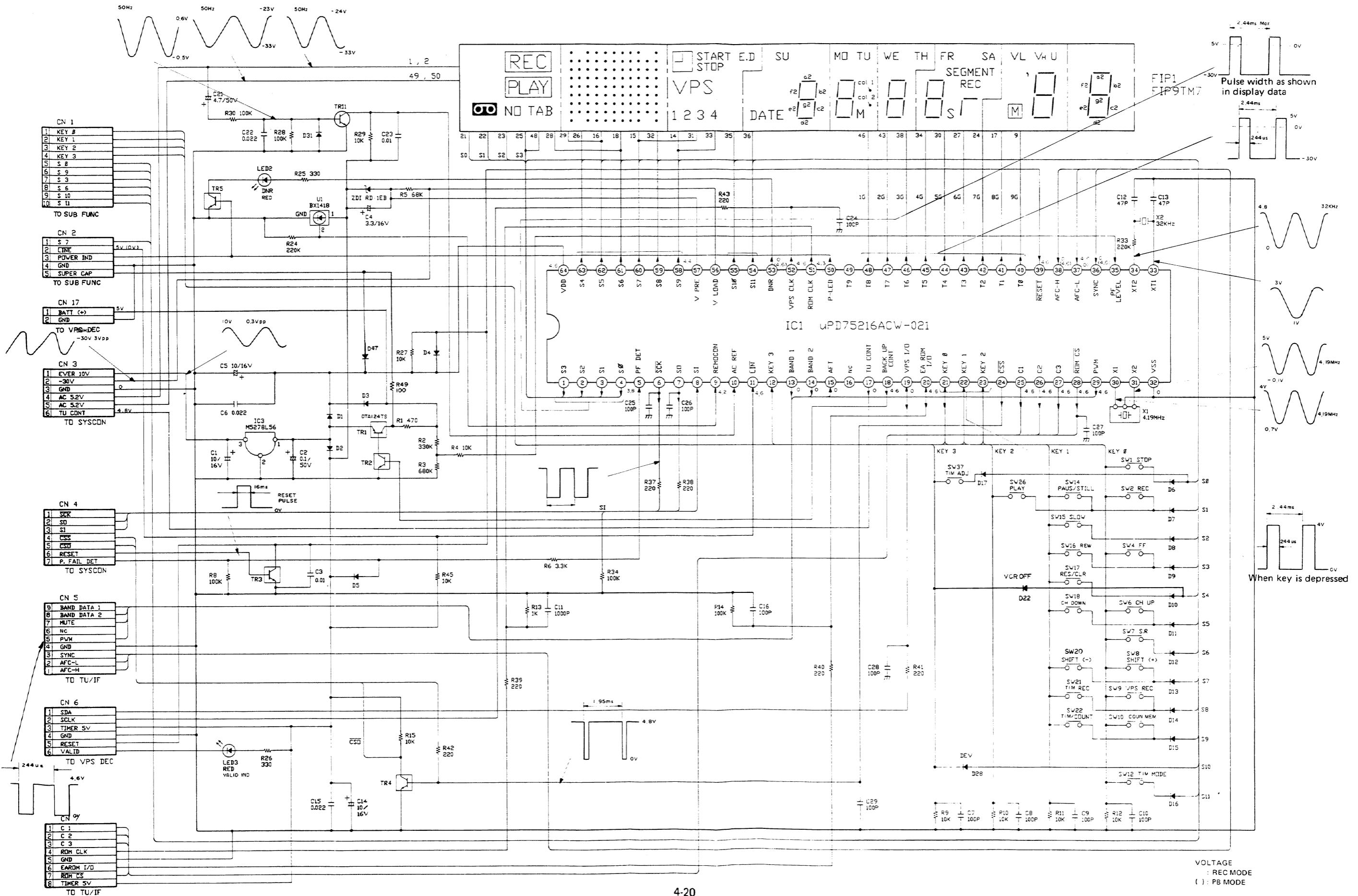
TR 504 2SC2001K, L



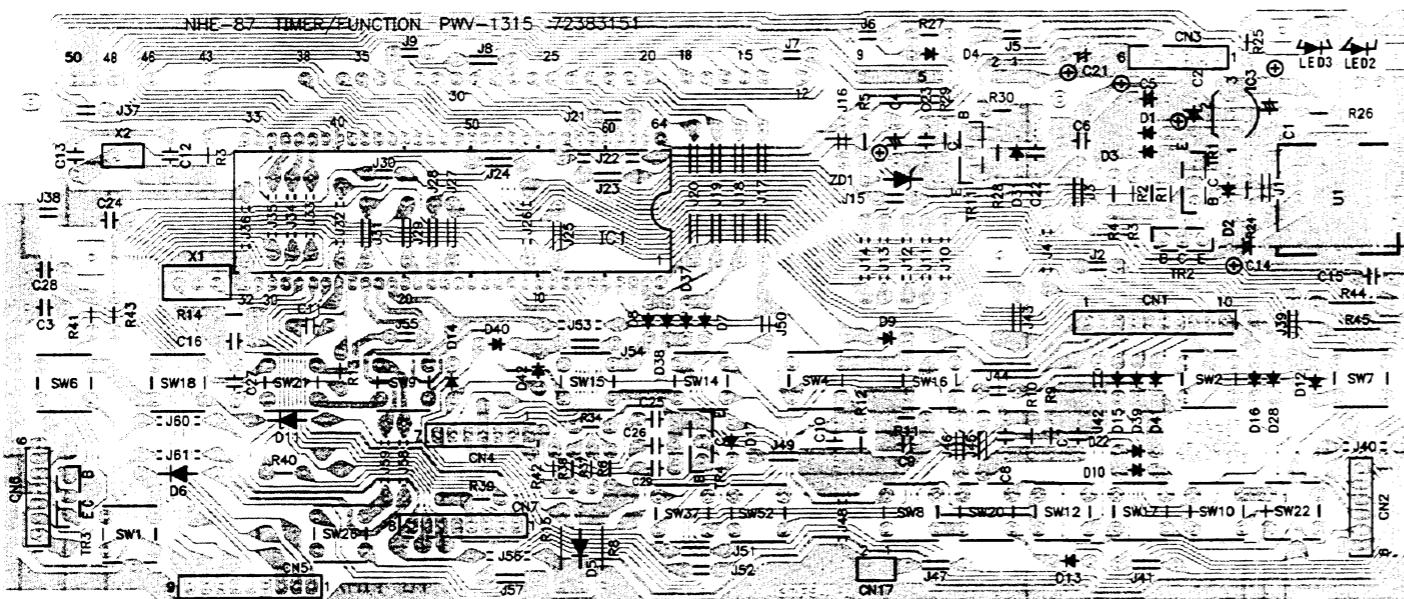
4-9. PRE AMP CIRCUIT BOARD



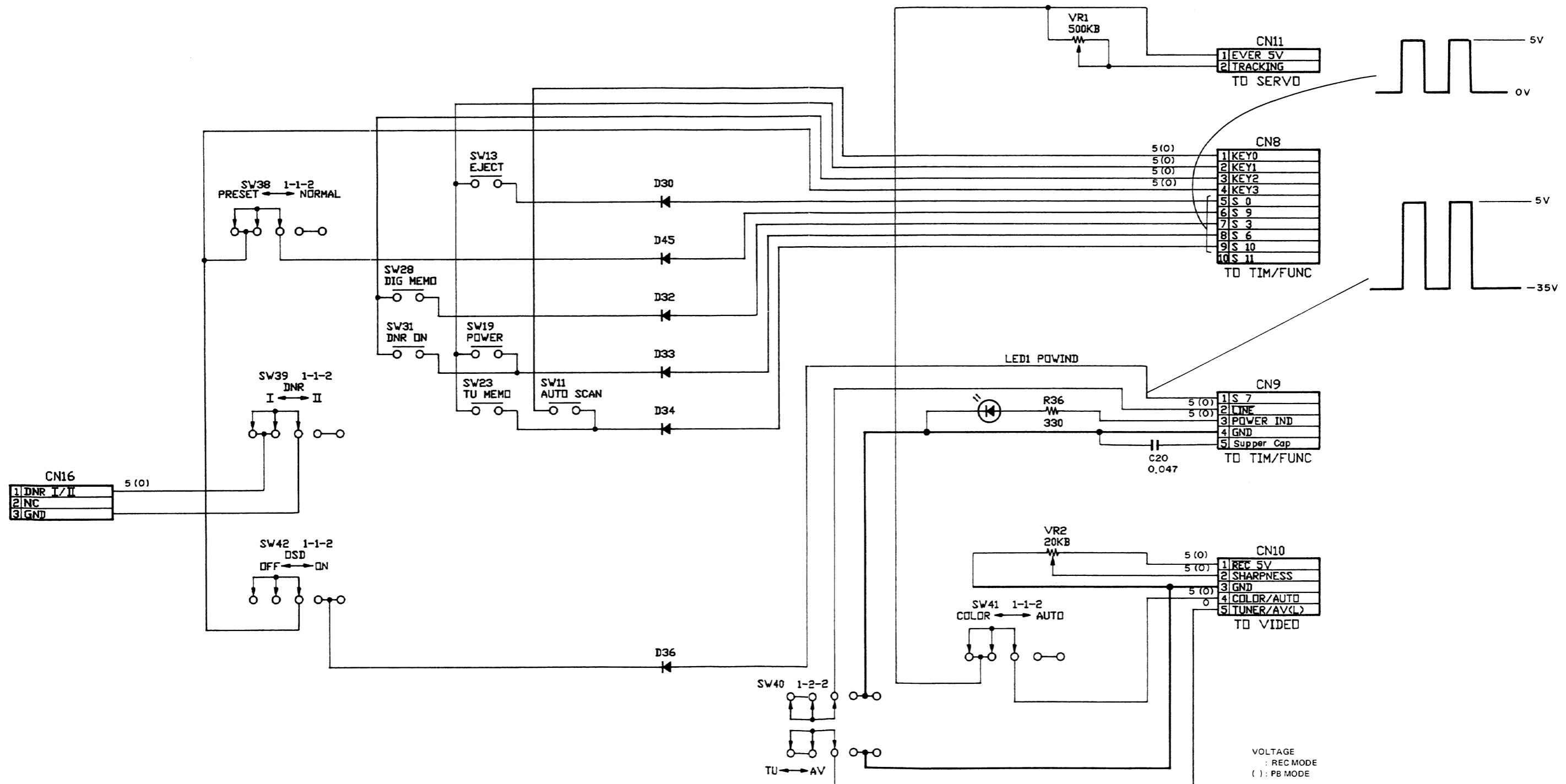
4-10. TIMER FUNCTION SCHEMATIC DIAGRAM



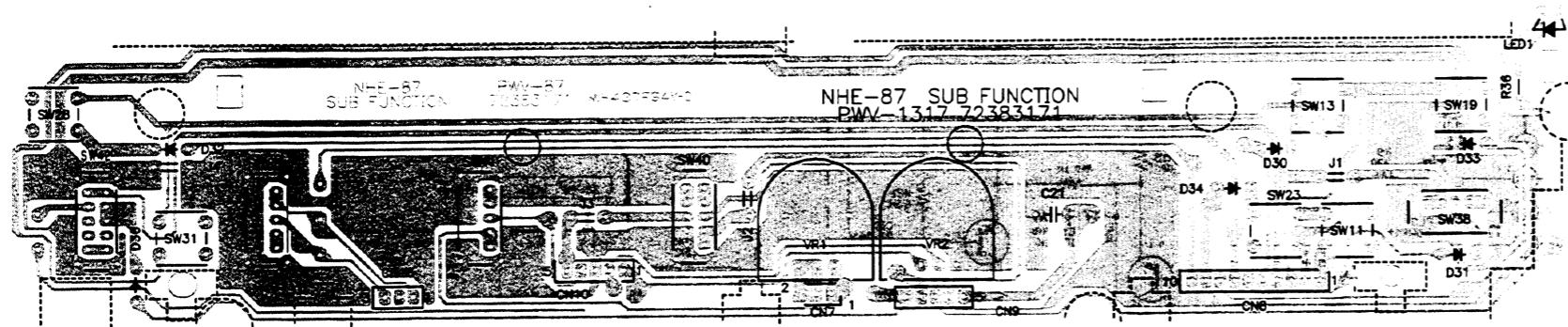
4-11. TIMER FUNCTION CIRCUIT BOARD



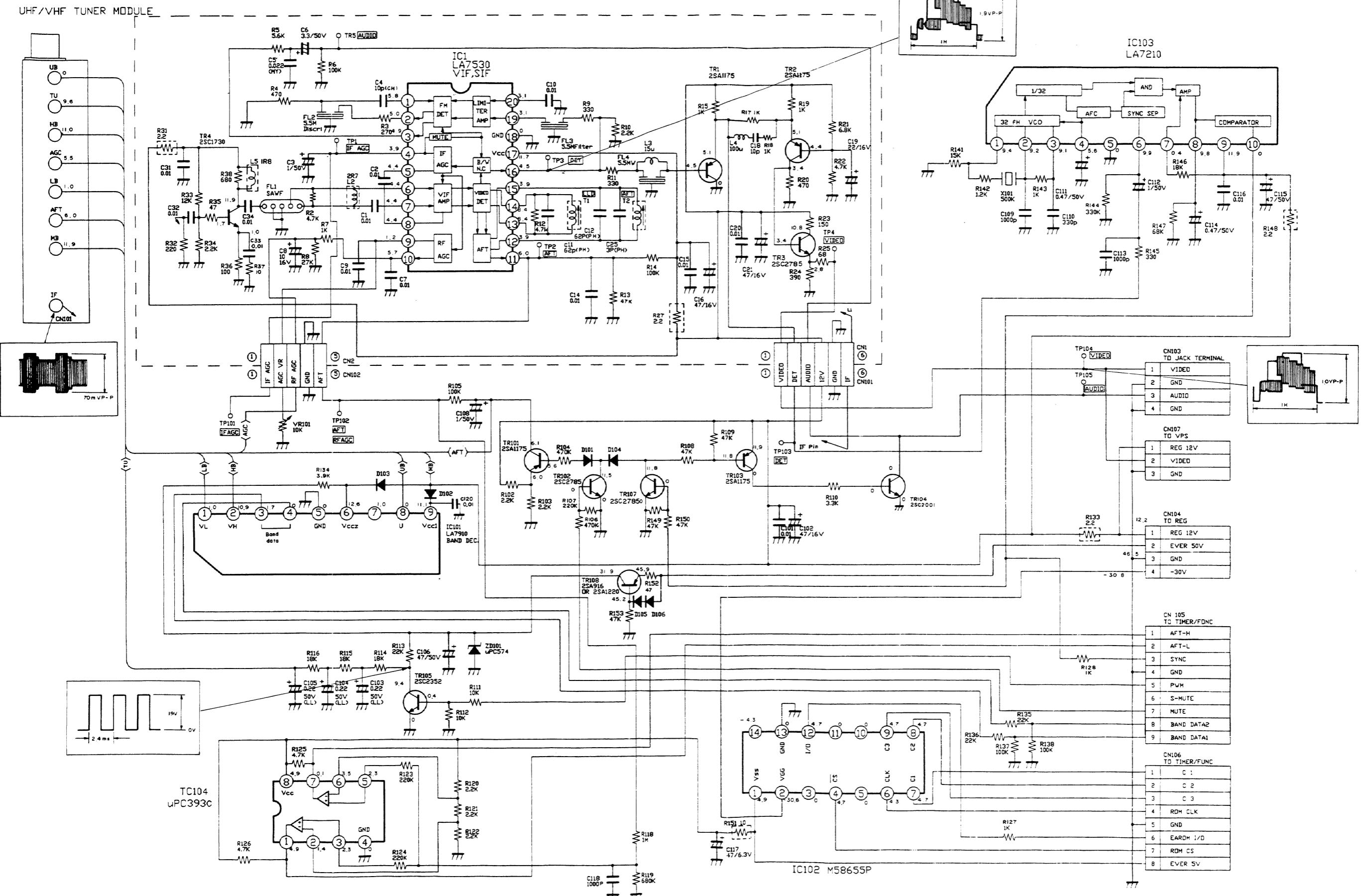
4-12. SUB FUNCTION SCHEMATIC DIAGRAM



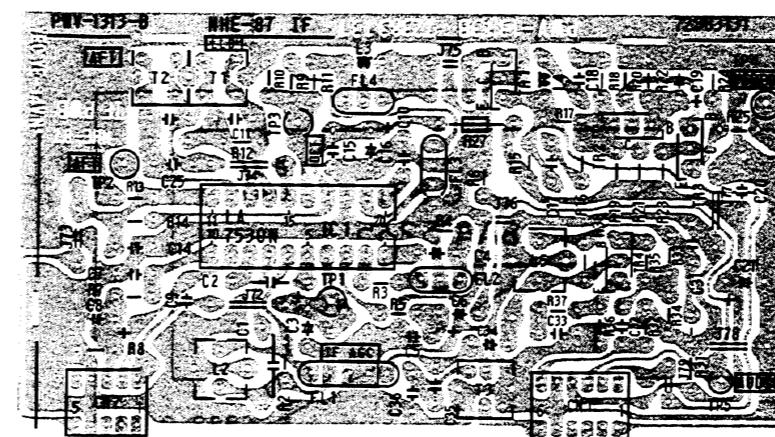
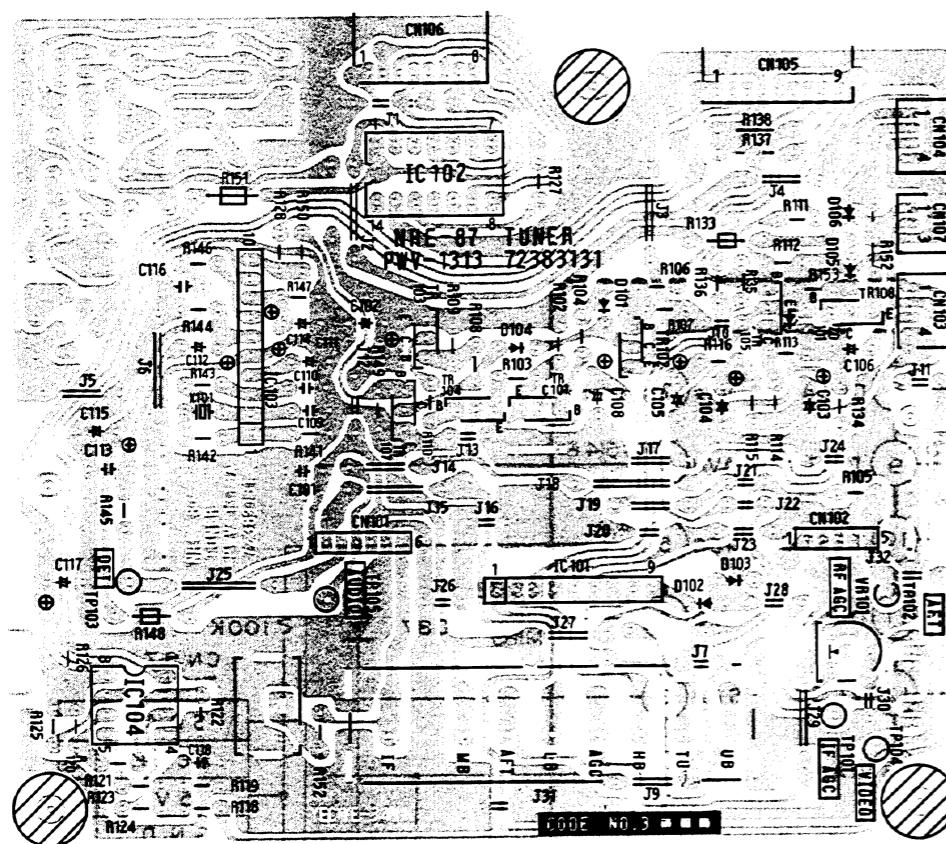
4-13. SUB FUNCTION CIRCUIT BOARD



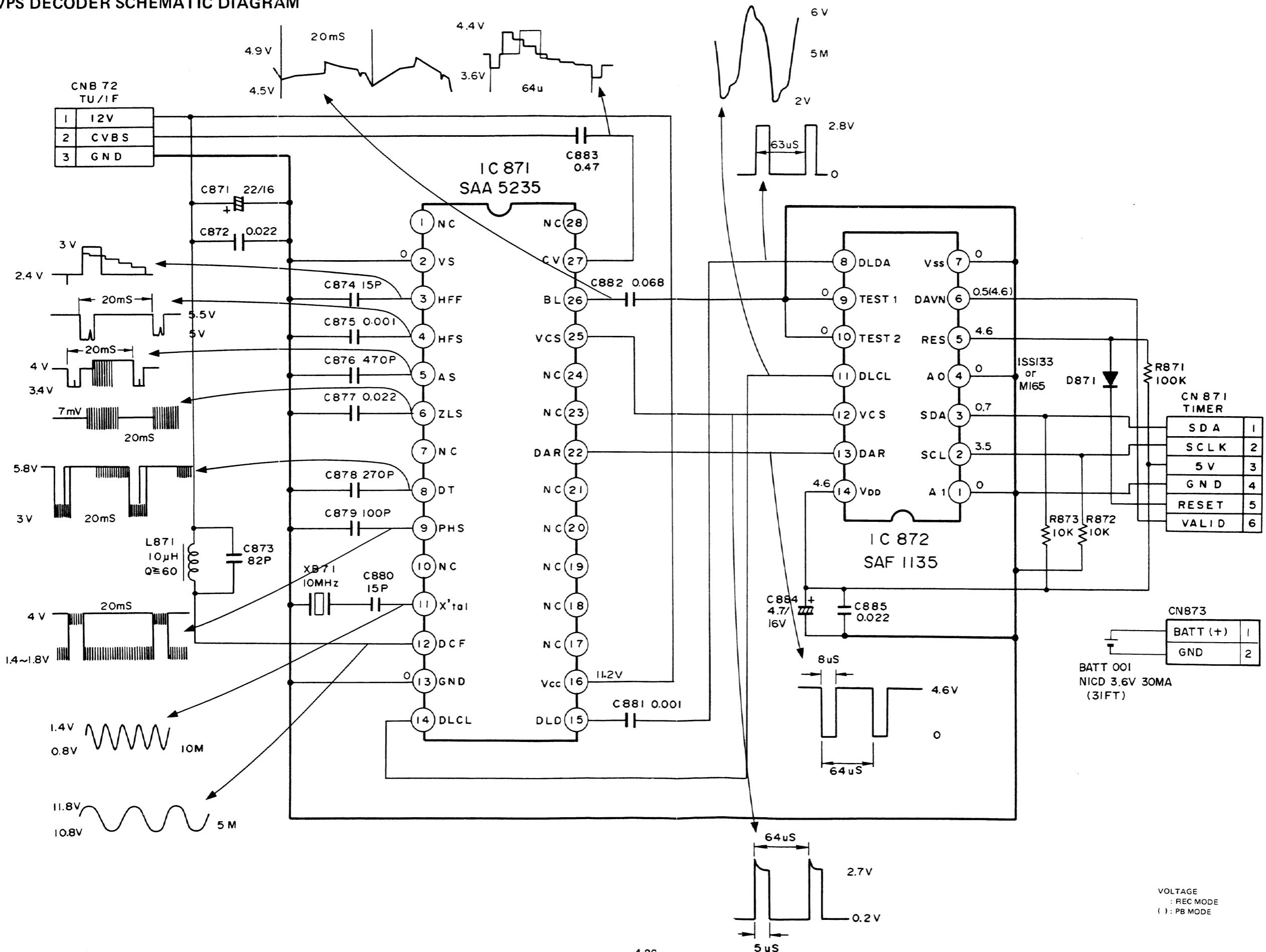
4-14. TUNER/IF SCHEMATIC DIAGRAM



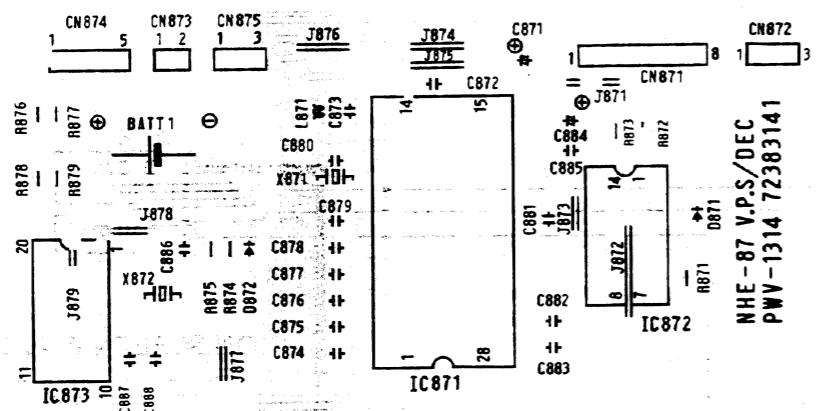
4-15. TUNER/IF CIRCUIT BOARD



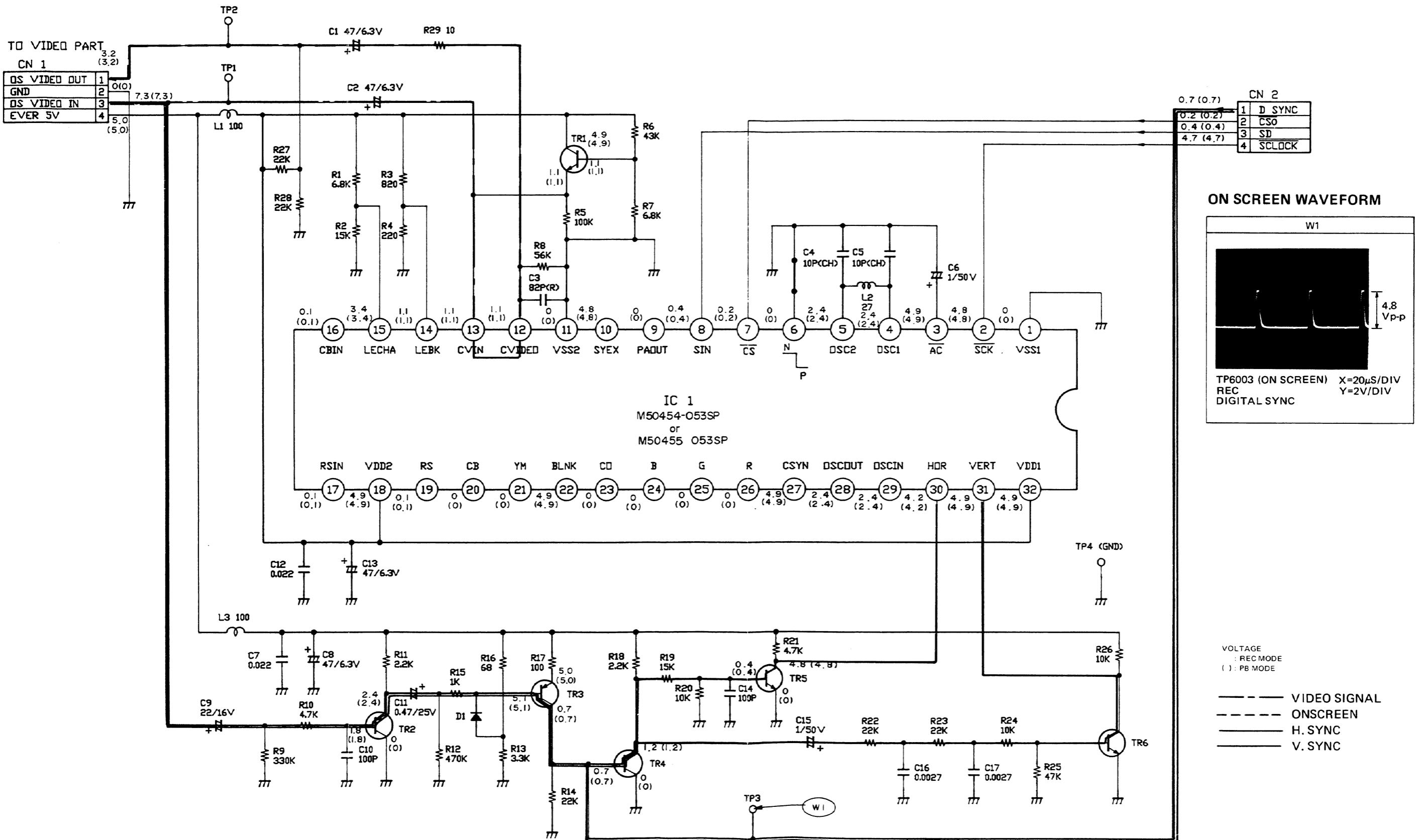
4-16. VPS DECODER SCHEMATIC DIAGRAM



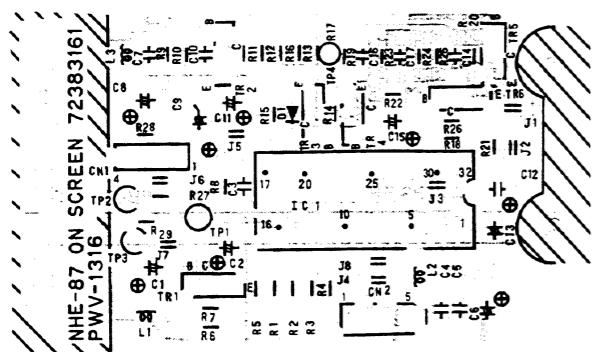
4-17. VPS DECODER CIRCUIT BOARD



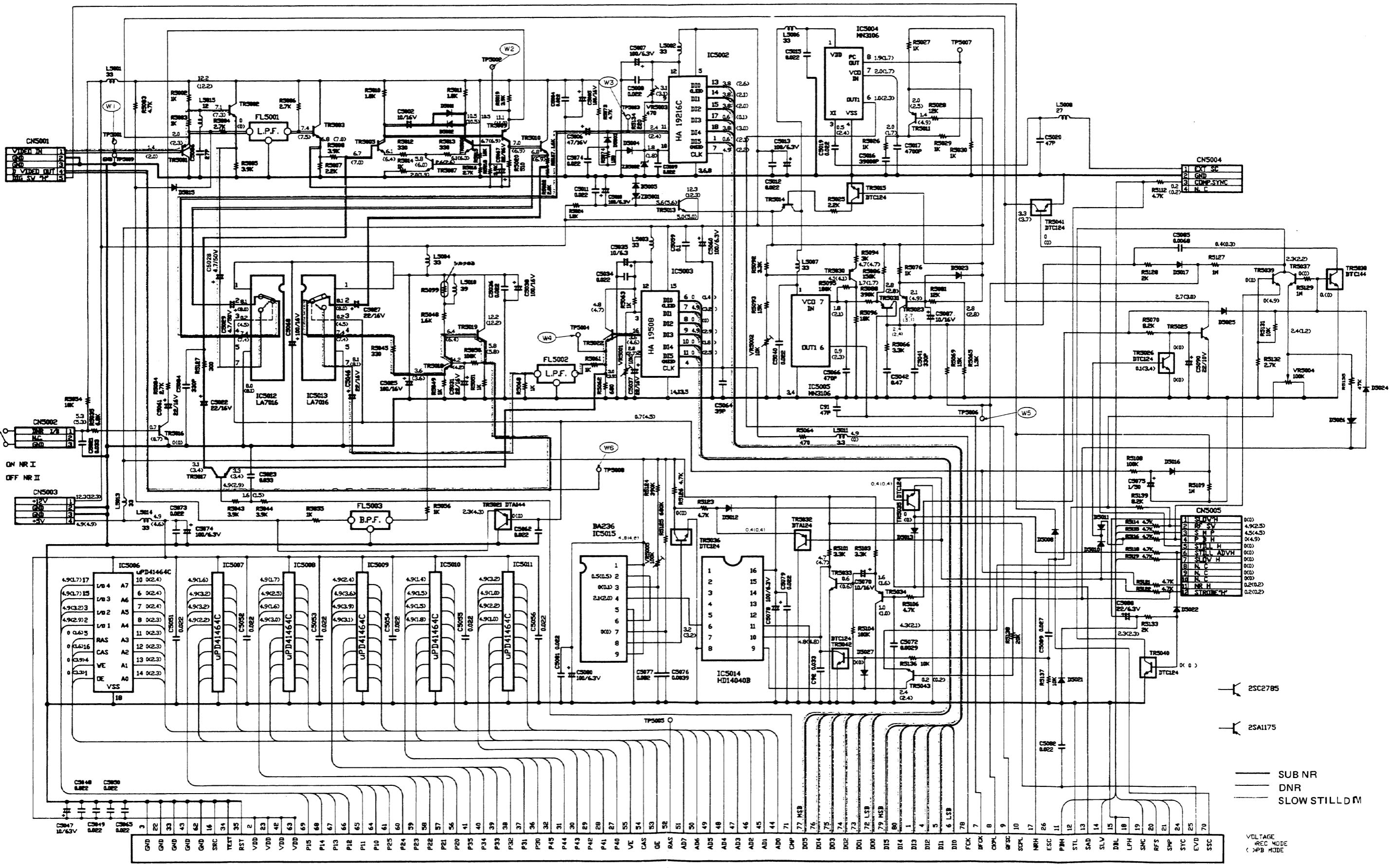
4-18. ON SCREEN SCHEMATIC DIAGRAM



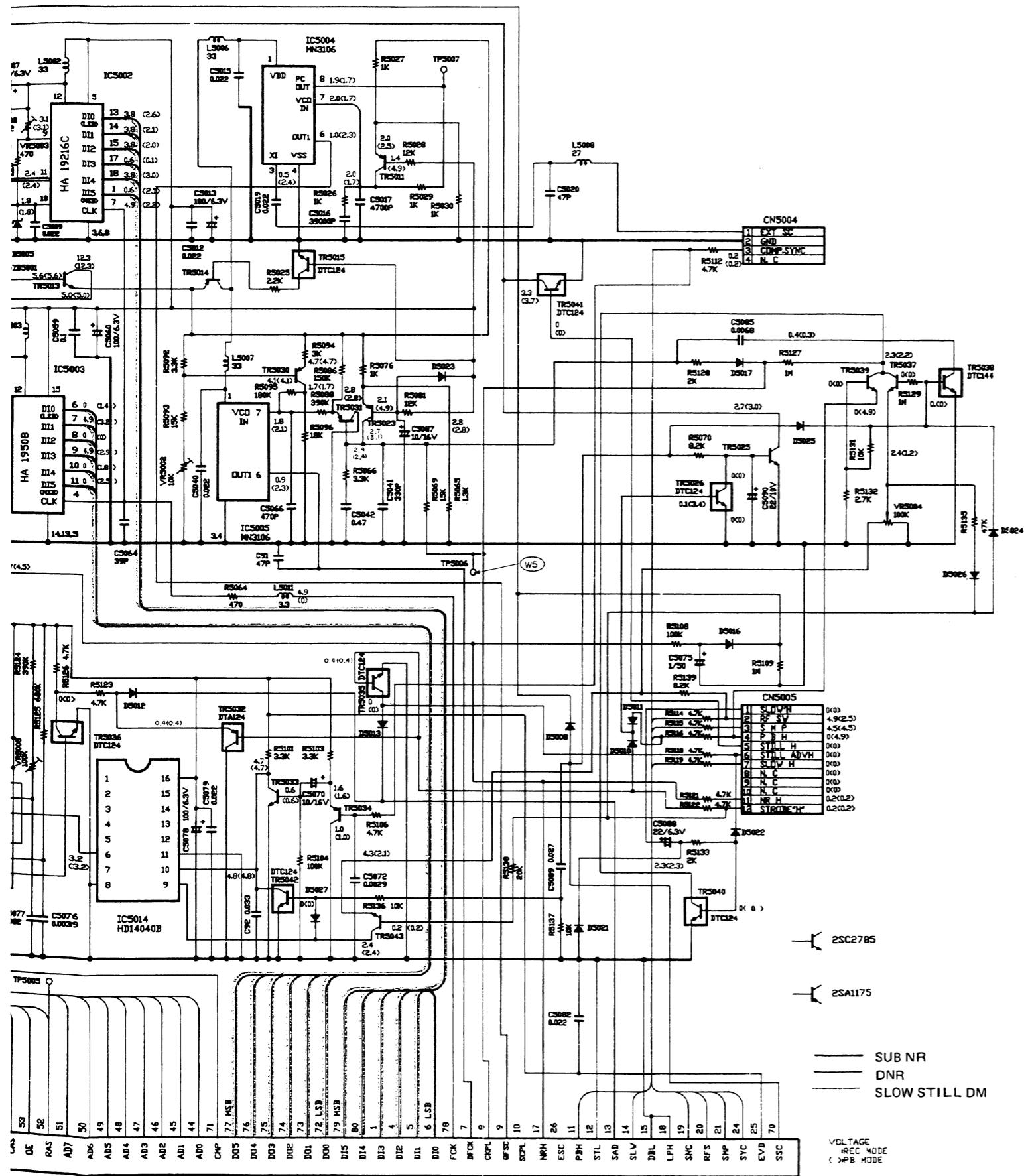
4-19. ON SCREEN CIRCUIT BOARD



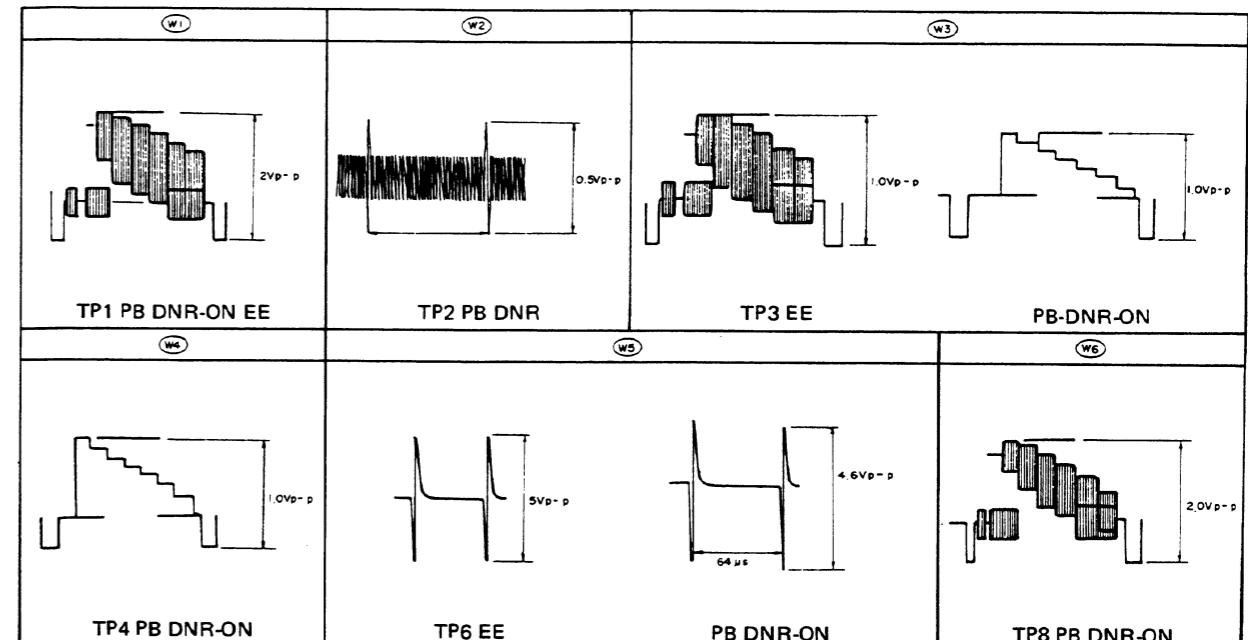
4-20. DIGITAL SCHEMATIC DIAGRAM



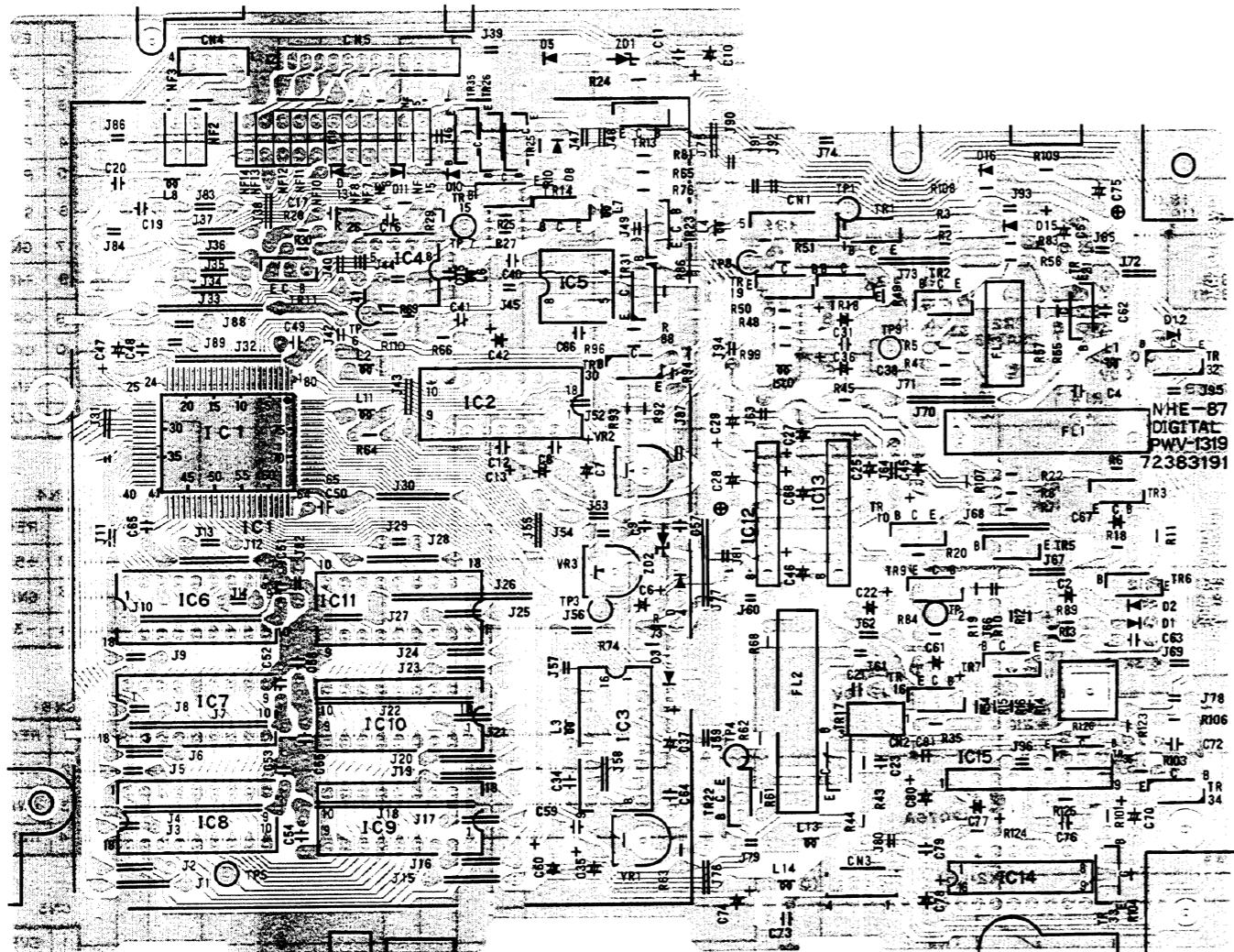
ICS001 VPD65031G-153-12



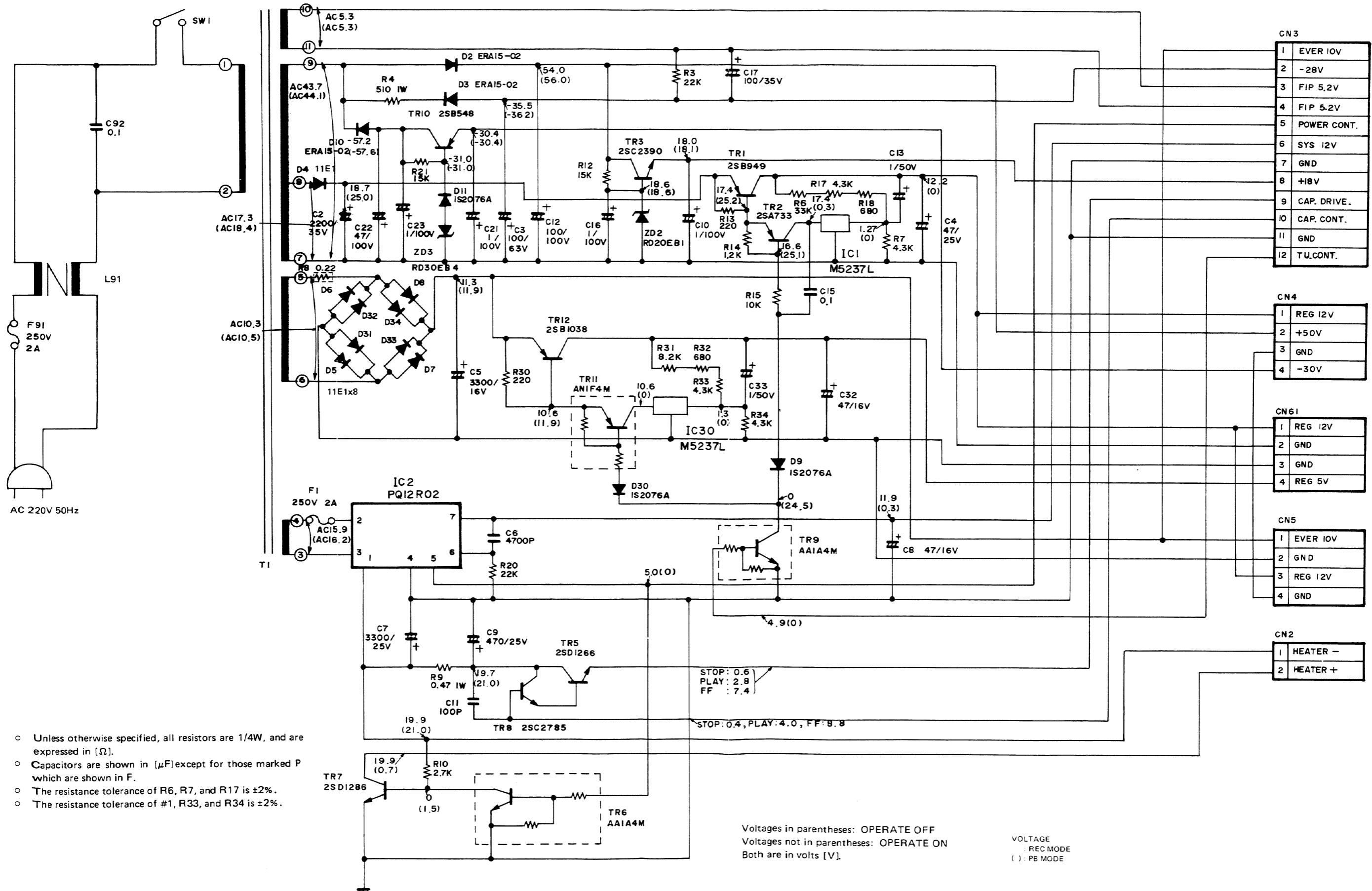
DIGITAL WAVEFORMS



4-21. DIGITAL CIRCUIT BOARD



4-22. POWER/REGULATOR SCHEMATIC DIAGRAM

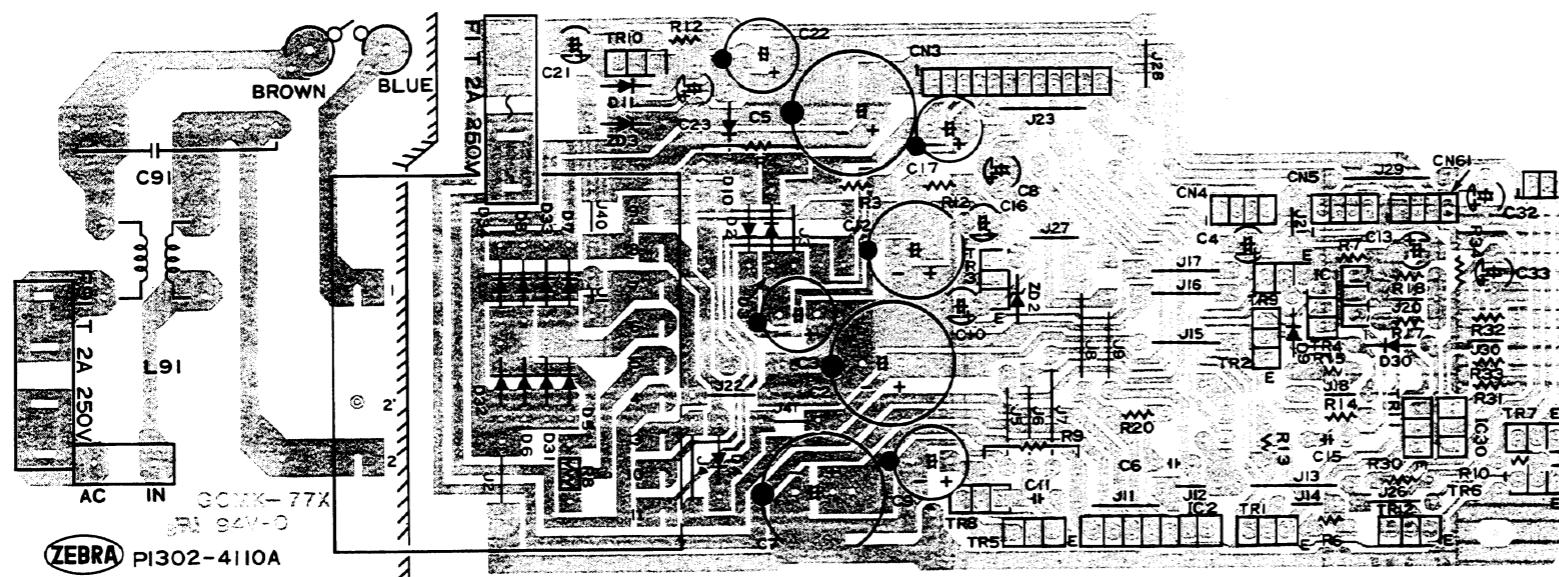


- Unless otherwise specified, all resistors are 1/4W, and are expressed in Ω .
 - Capacitors are shown in μF except for those marked P which are shown in F.
 - The resistance tolerance of R6, R7, and R17 is $\pm 2\%$.
 - The resistance tolerance of #1, R33, and R34 is $\pm 2\%$.

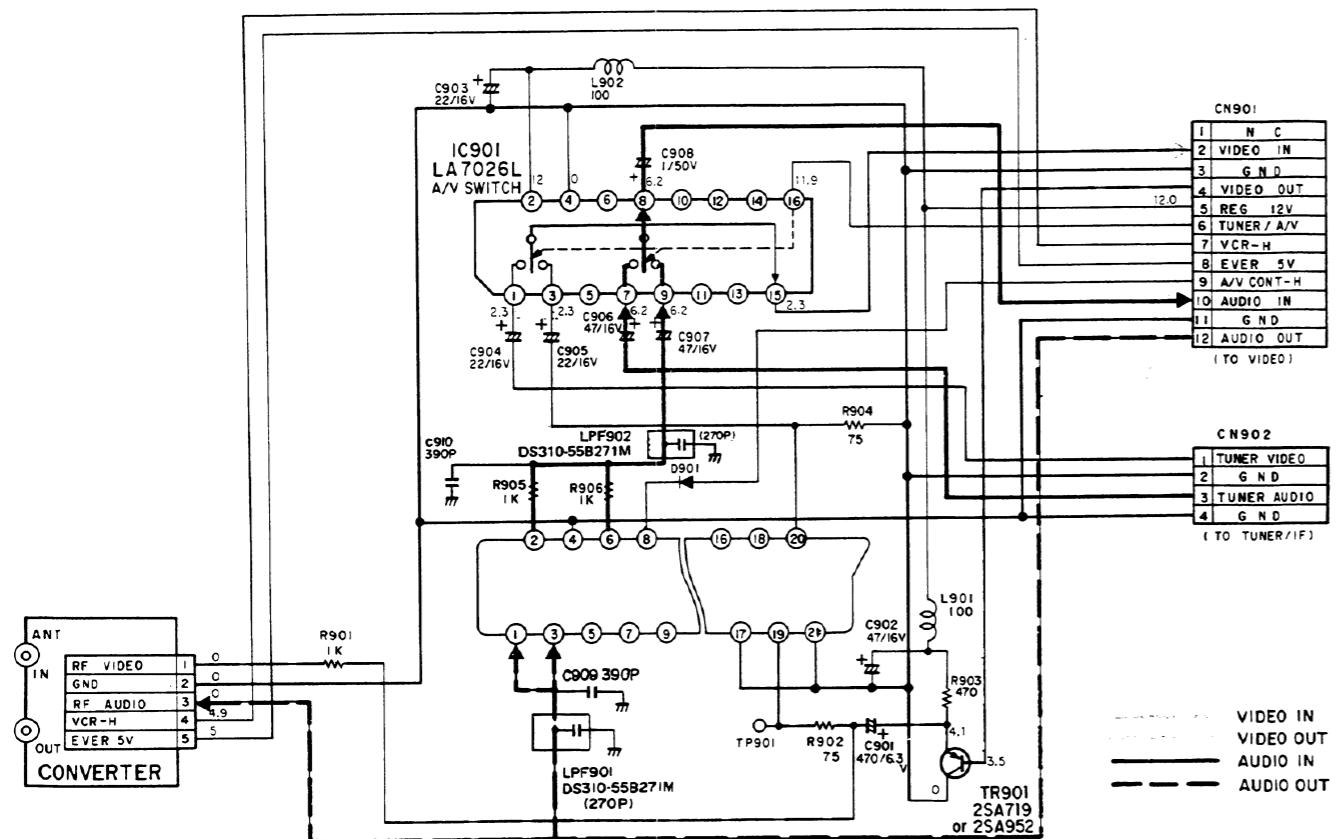
Voltages in parentheses: OPERATE OFF
Voltages not in parentheses: OPERATE ON
Both are in volts [V].

VOLTAGE
REC MODE
() PB MODE

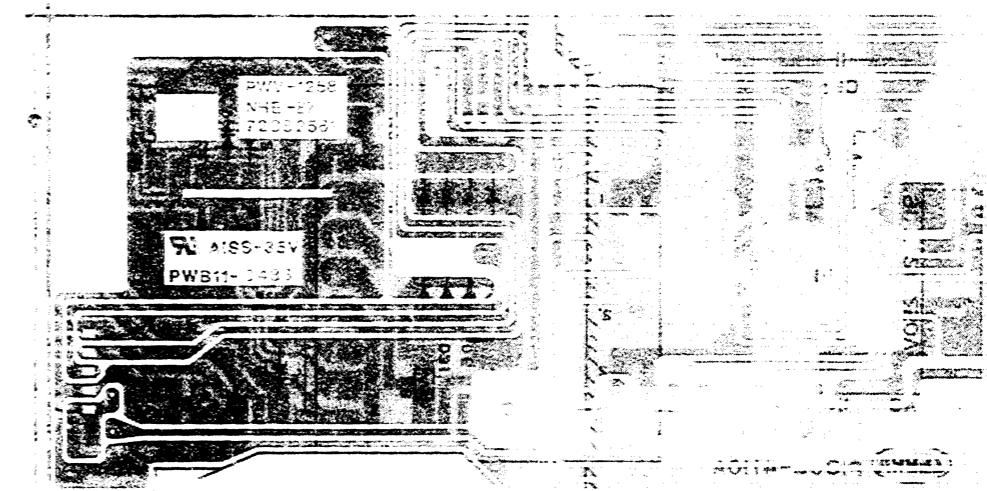
4-23. POWER/REGULATOR CIRCUIT BOARD



4-24. JACK TERMINAL SCHEMATIC DIAGRAM

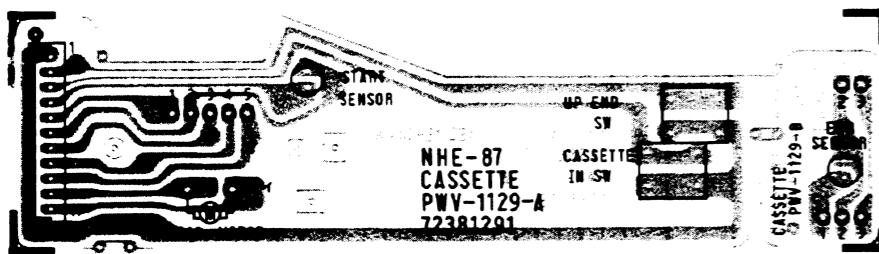


4-25. JACK TERMINAL CIRCUIT BOARD

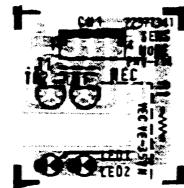


4-26. OTHER MINI-CIRCUIT BOARD

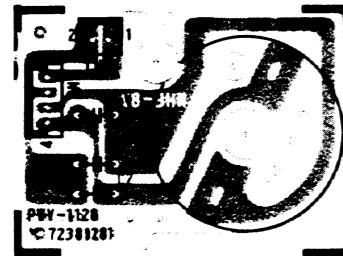
• CASSETTE CIRCUIT BOARD



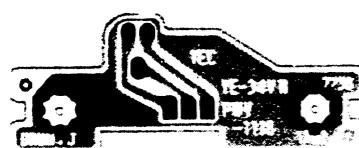
• MODE SENSOR CIRCUIT BOARD



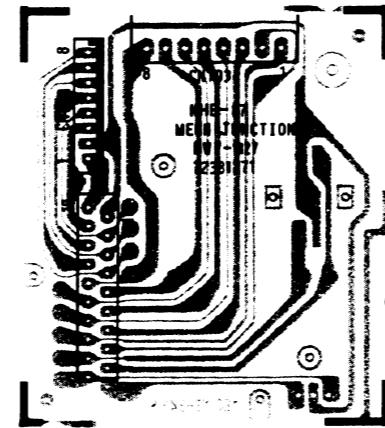
• MC CONTROL CIRCUIT BOARD



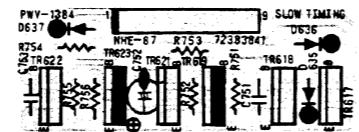
• DRUM JUNCTION CIRCUIT BOARD



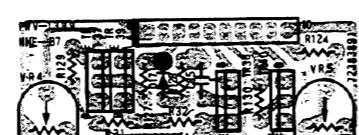
• MECHA JUNCTION CIRCUIT BOARD



• SLOW TIMING CIRCUIT BOARD



• SUB DIGITAL CIRCUIT BOARD

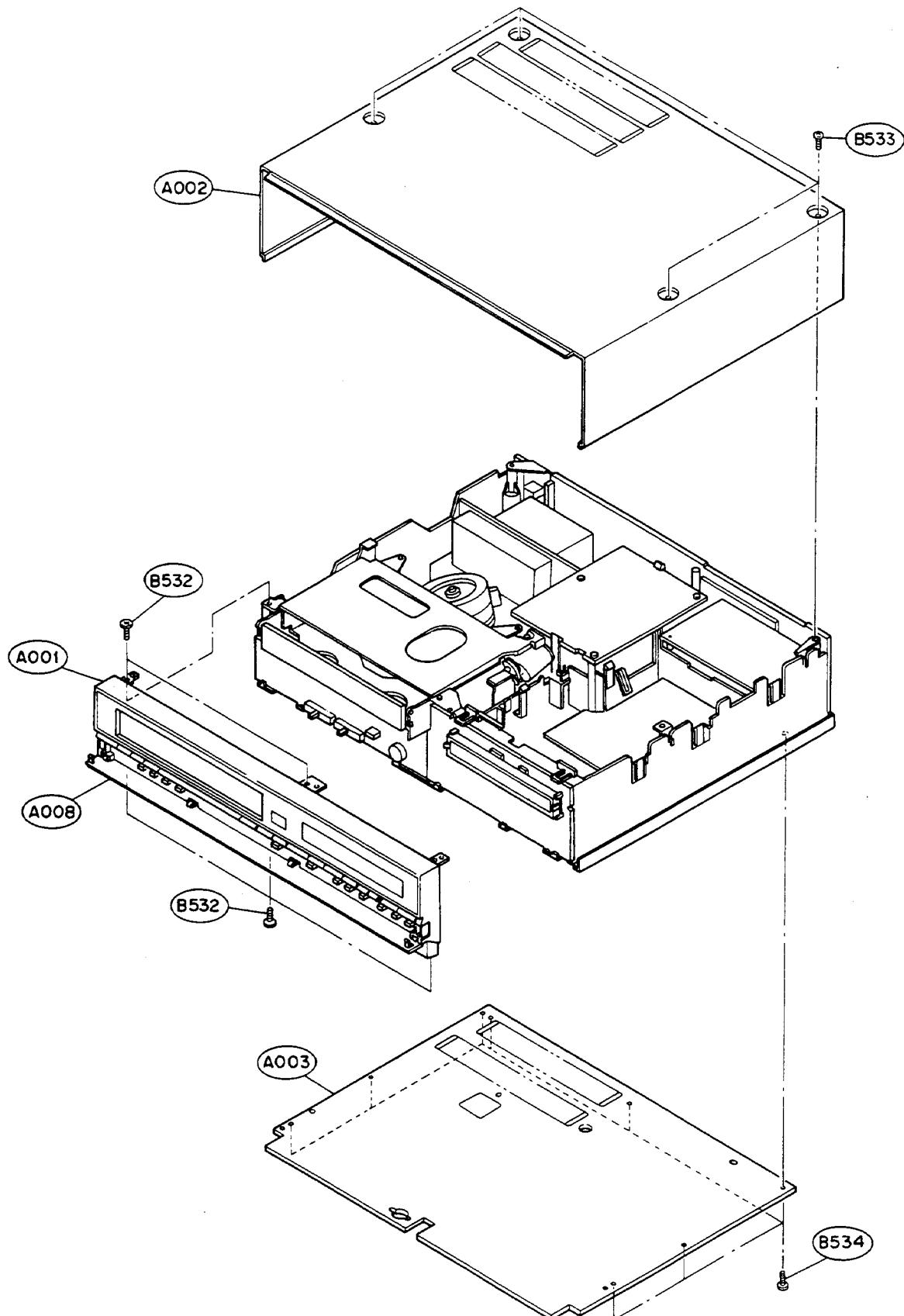


DIGITAL TRANSISTOR INFORMATION

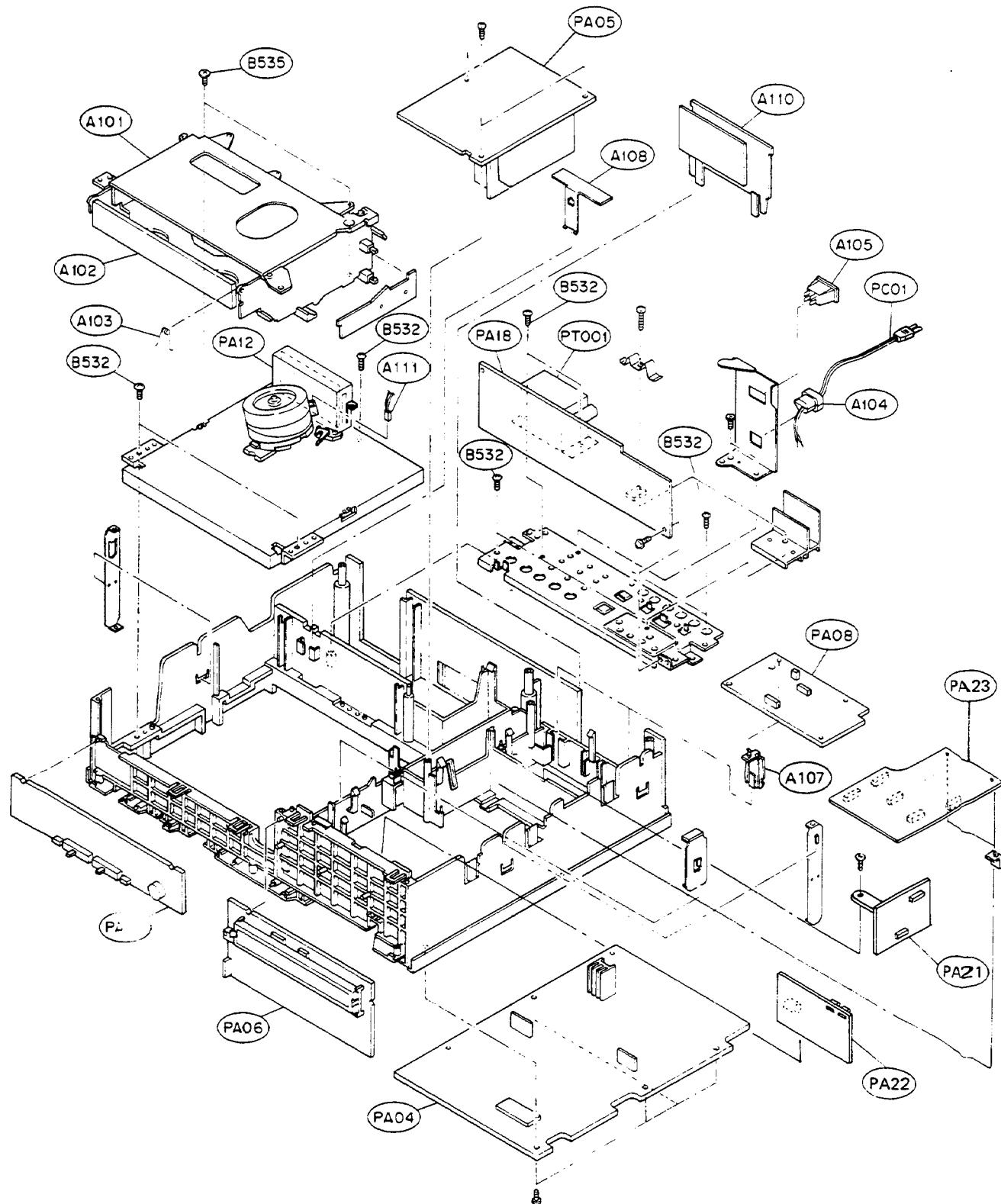
SYMBOL	FIGURE
BA1L4M	
BN1L4M	
BA1F4M	
BN1F4M	
BN1A4M AN1A4M	
BA1A4M AA1A4M	
UN4122	
BB1A3Z	

SECTION 5 EXPLODED VIEW

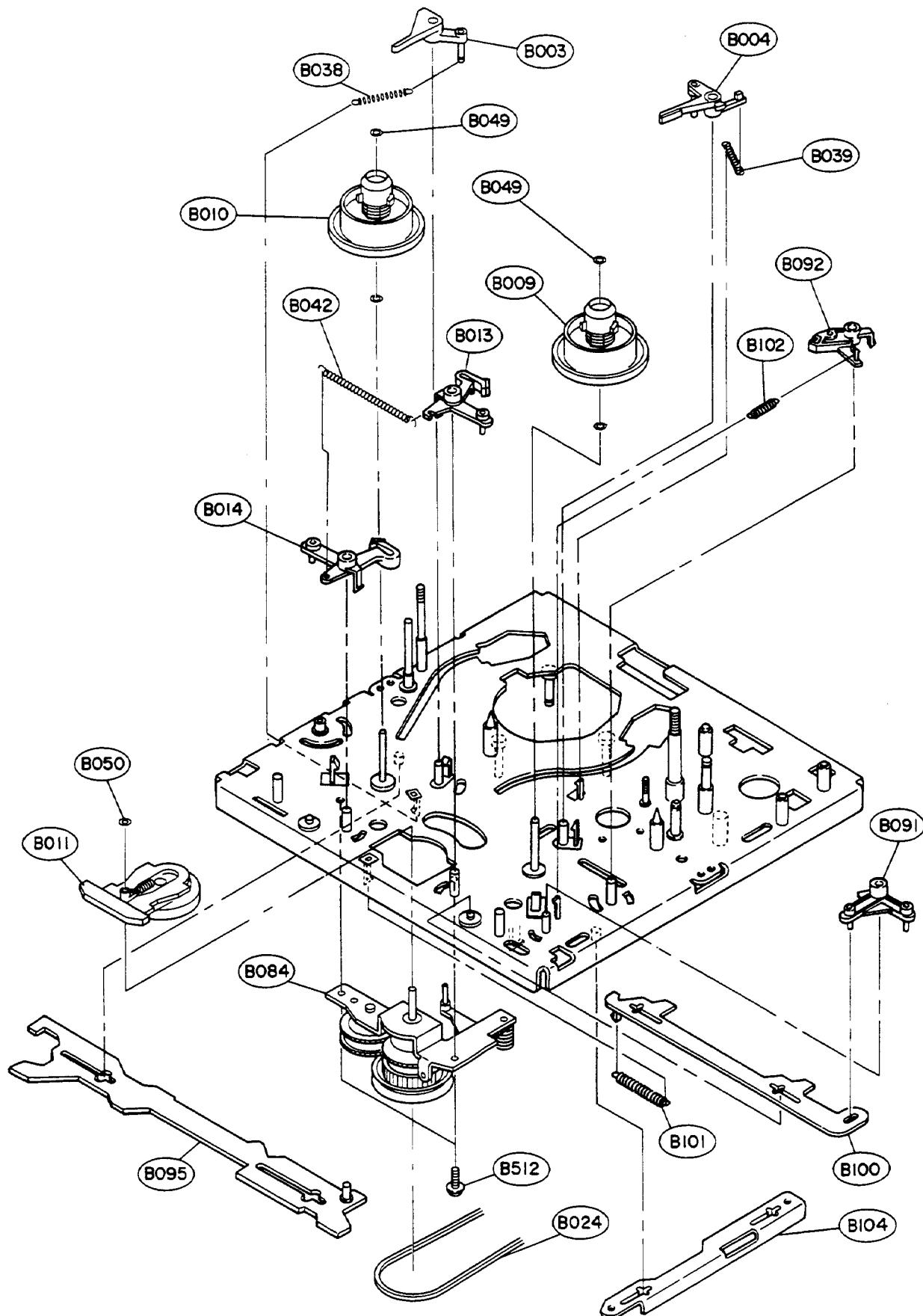
5-1. CABINET SECTION

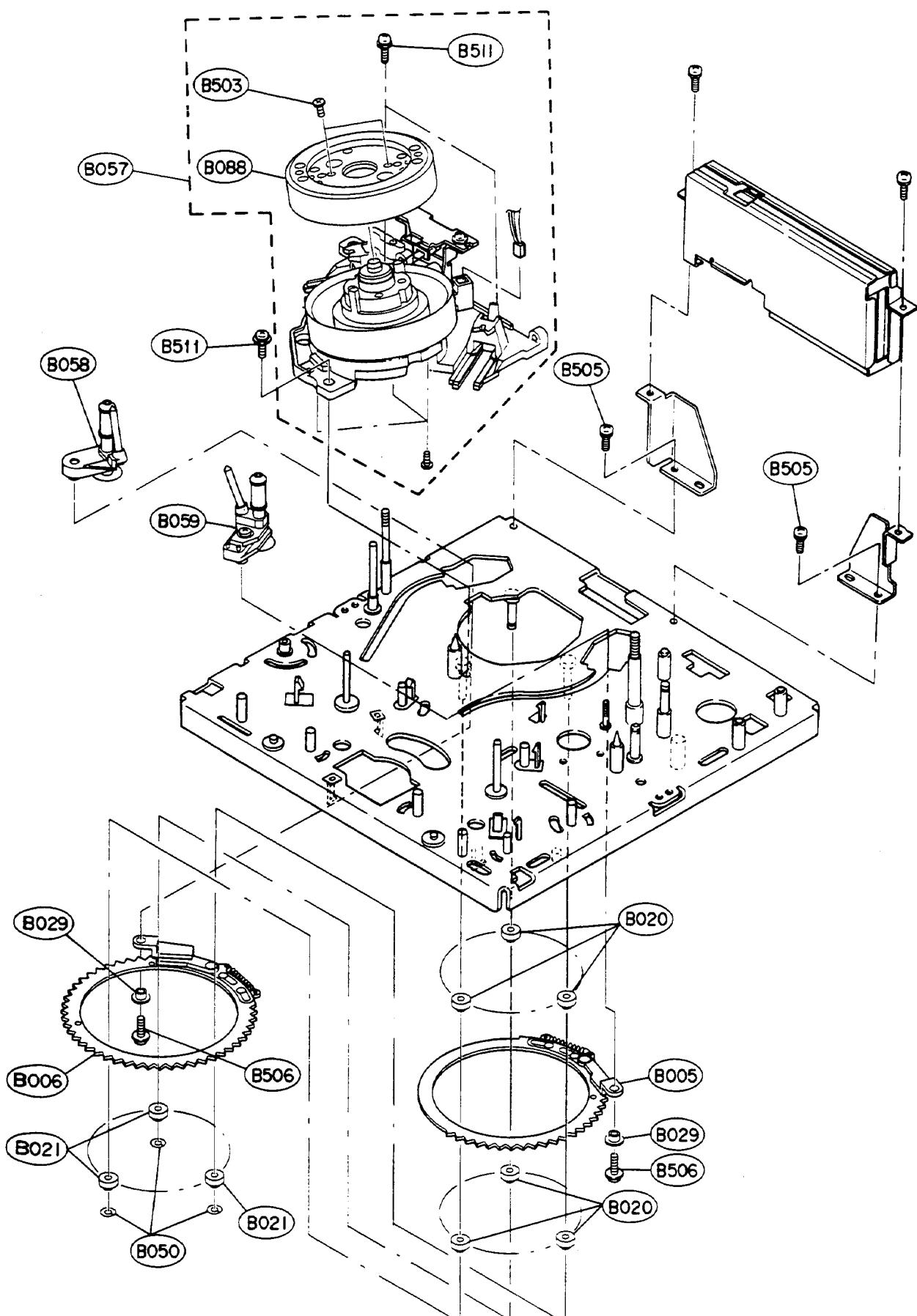


5-2. CHASSIS SECTION

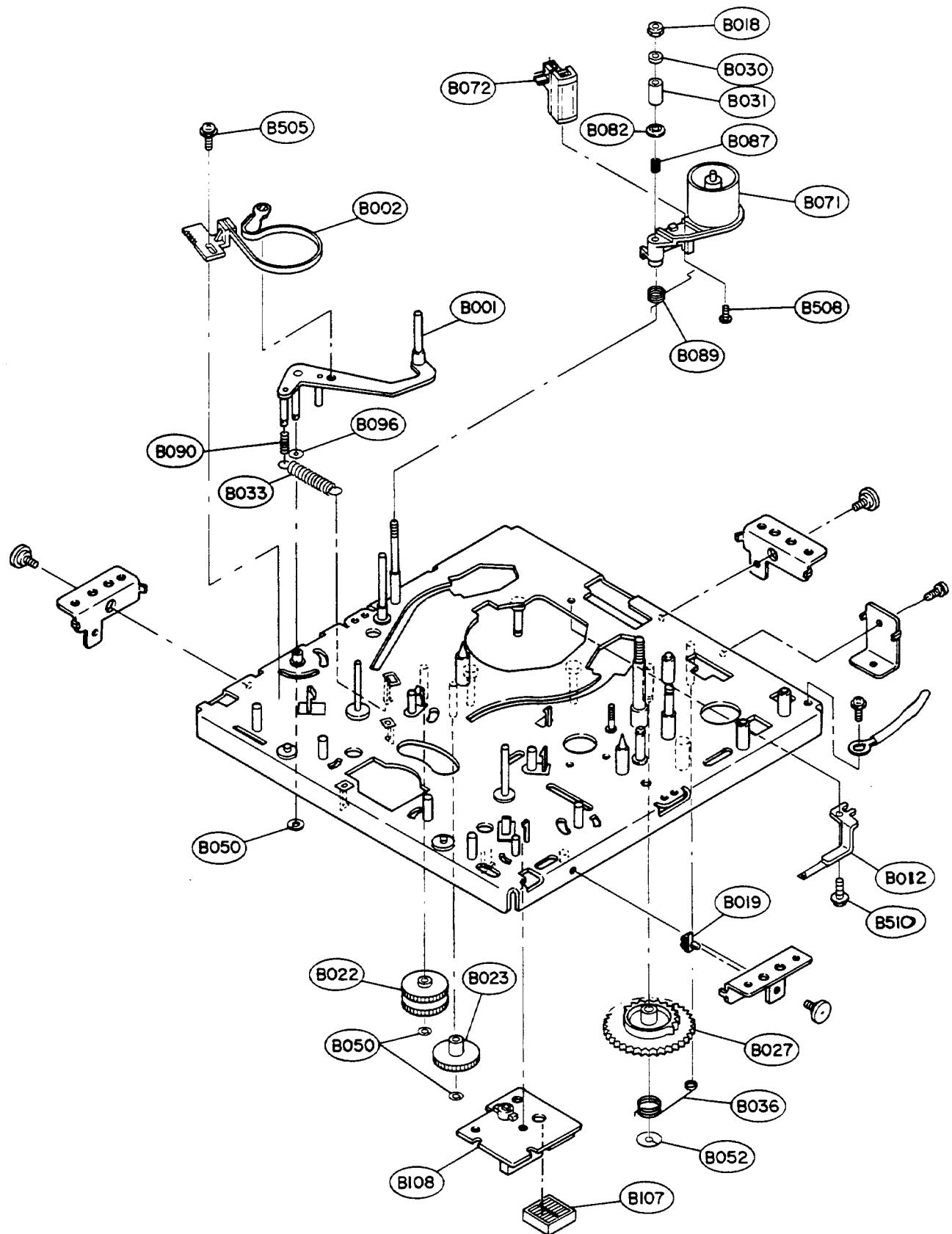


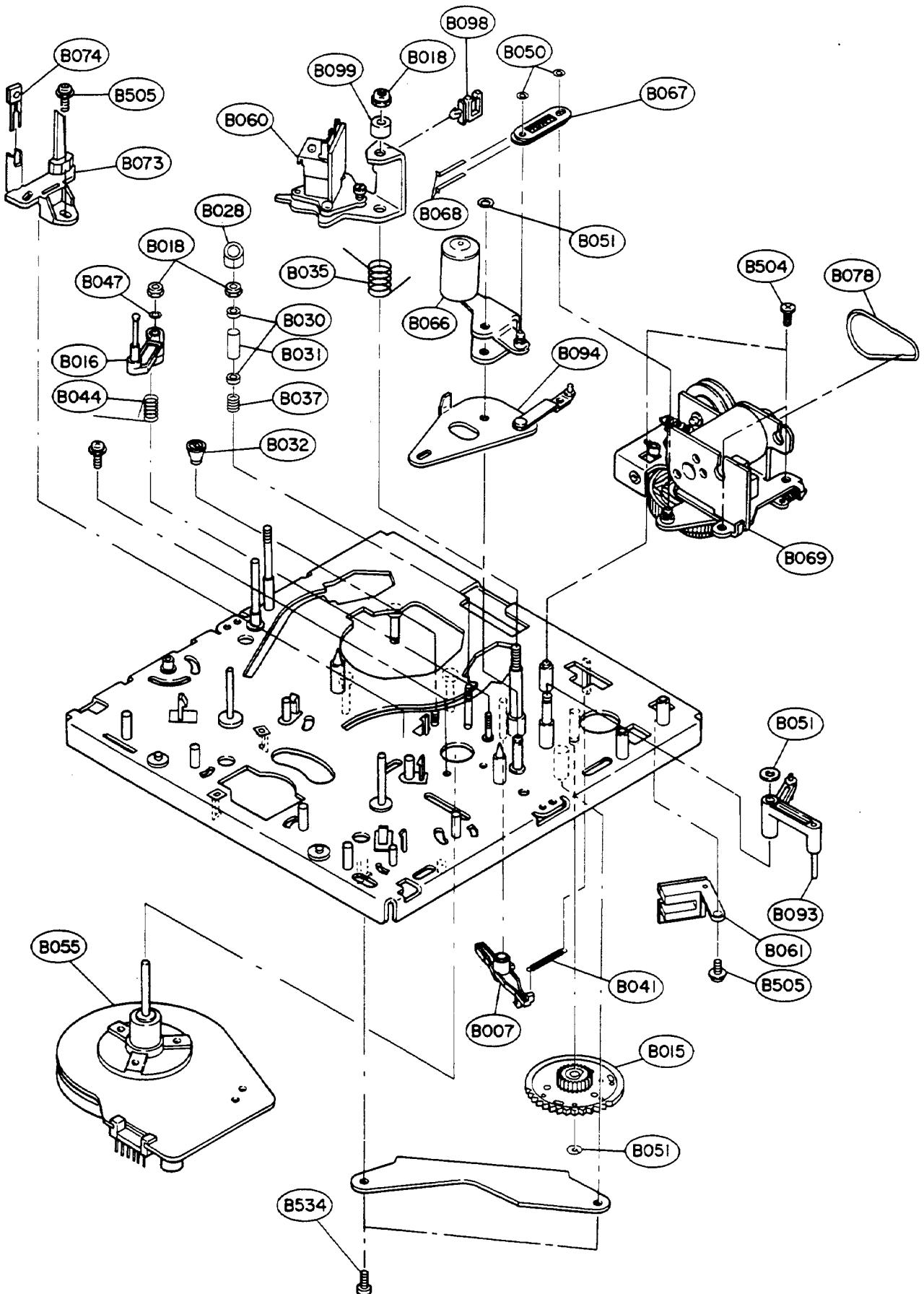
5-3. MECHANISM (I) SECTION



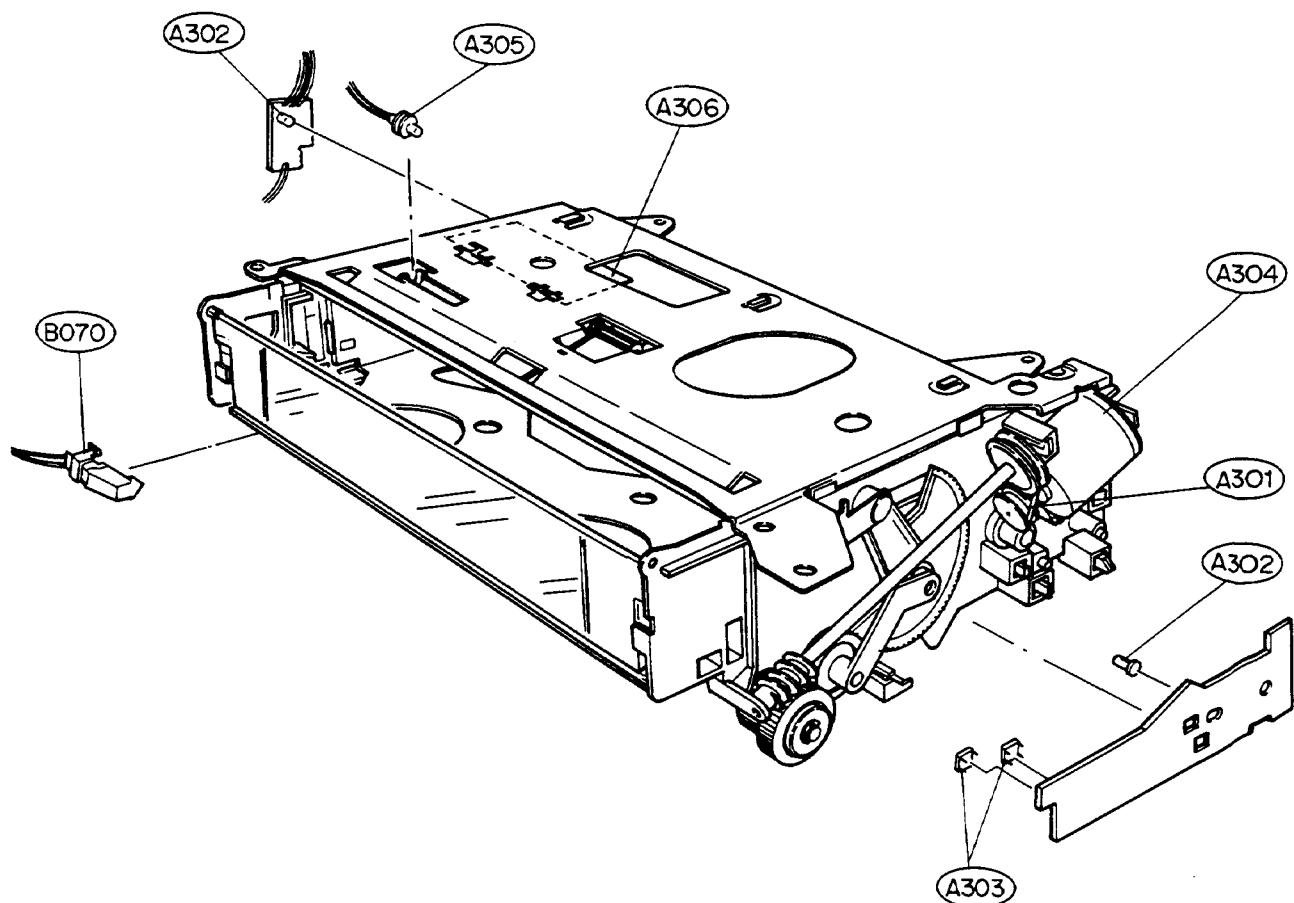


5-4. MECHANISM (II) SECTION

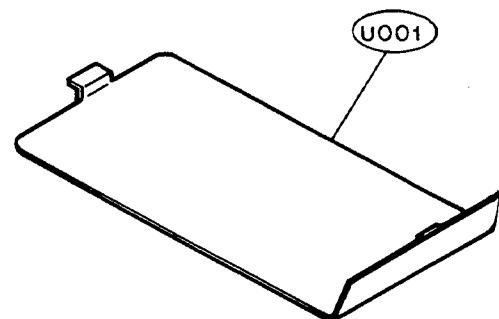
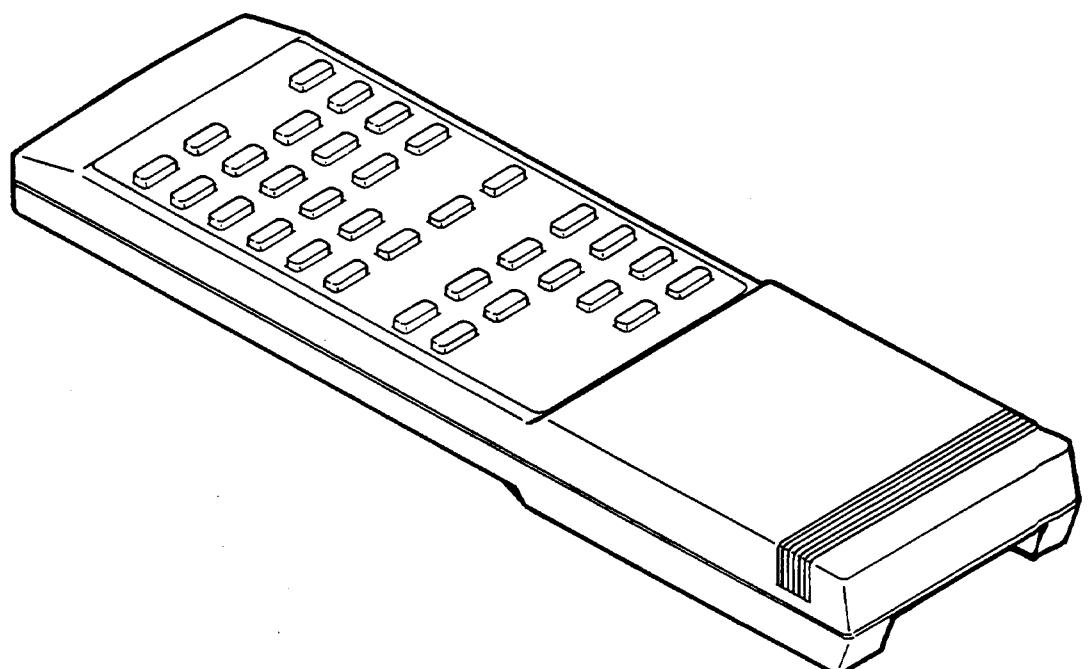




5-5. CASSETTE HOUSING SECTION



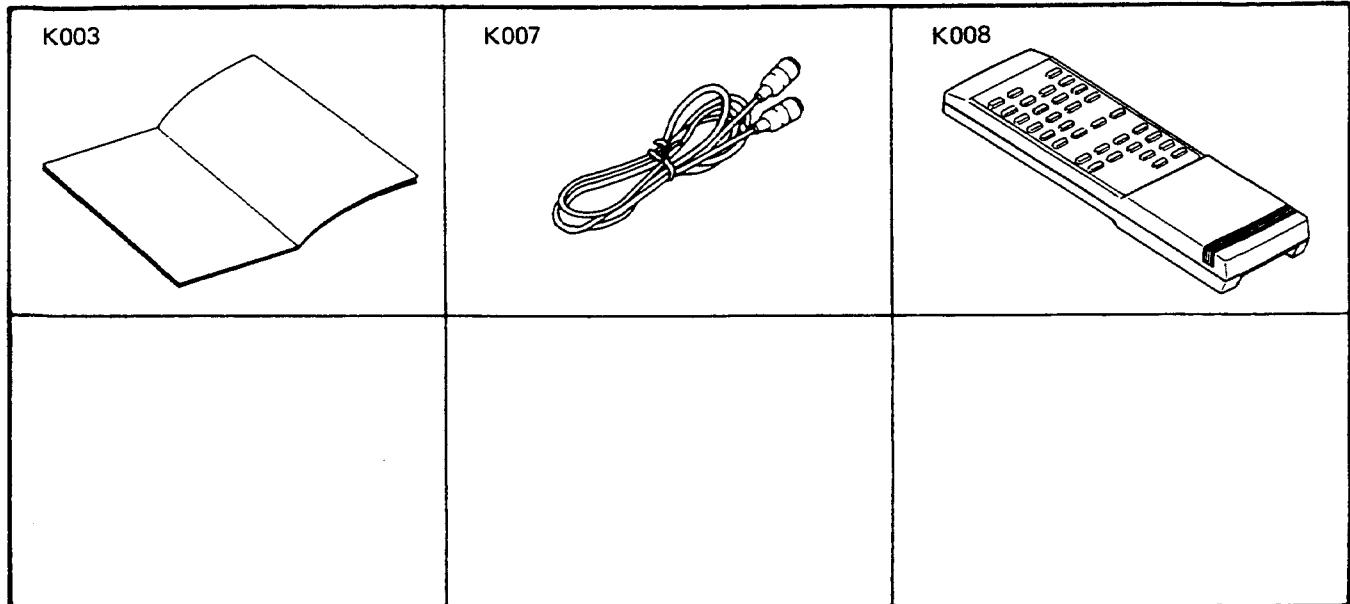
5-6. WIRELESS REMOTE CONTROL SECTION



WIRELESS REMOTE CONTROL PARTS LIST

SYMBOL	PART NO.	DESCRIPTION	Q'TY
U001	18940256	BATTERY CASE	1

5-7. ACCESSORIES



REF. NO	PART NO.	DESCRIPTION
K003	78816751	INSTRUCTION MANUAL
K007	79559054	IEC RF CABLE (1.2M)
K008	79799463	WIRESS REMOTE CONTROL UNIT

SECTION 6

REPLACEMENT PARTS LIST

(87. 07. 07)

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MODEL : SYS/SERV/VID PWB ASSY

MODEL : SYS/SERV/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** IC5 ***			
IC1604	37101117	JC UPC324C	1
IC1612	37101127	JC UPC-393C	1
IC1207	37101159	LA7016 ANALOG SW	1
IC1402	37101249	HA7025L (SECMAG DET)	1
IC1206	37101288	IC HA17805	1
IC1201	37101312	JC AN3215K (REC Y-PROCESS	1
IC1202	37101312	JC AN3218 (PH Y PROCESS)	1
IC1603	37101323	IC DA15218 (OP AMP)	1
IC1208	37101324	IC LA73C8	1
IC1401	37101334	IC PAL CHROMA(6163,6367)	1
IC1403	37151254	JC TK15064Z	1
IC1163	37151267	MOS MN1200R VOLTAGE DET	1
IC1701	37151329	MOS BU2718S	1
IC1102	37151334	IC RA6246	1
IC1101	37151380	MOS UPD75108CW-067 D700S3	1
IC1602	37901159	JC M5218 P (DIP)	1
IC1605 IC160P	37910121	MOS UPD066BC(ESD)	1
IC1613	37904002	MOS-UPD0411	2
*** TRANSISTORS ***			
TP1611	35065616	TP-2SD882 P	1
TP12C3	TP1209	TP1211	16
TR1235	TR1236	TP1246	
TR1255	TR1402	TR1404	
TR1407	TP1409	TR1410	
TP1411	TP1601	TR1405	
TR1610	TP12C6	TR1207	14
TR1105	TP12C6	TR1207	
TR1212	TP1221	TR1234	
TP1242	TR1245	TP1247	
TR1252	TR1254	TR1413	
TP1415	TR1419	TR1609	8
TP1108	TR1603	TR1606	
TP1607	TR1619	TR1612	
TP1614	TR1615		5
TR1240	TP1241	TP1603	
TP1216	TP1618	TP1621	4
TR11C1	TR1242	355K2110	2
TP12C8	TP1213	TP1220	
TP1253	TP1418	TP1412	
TR1619	TR1623	355021C5	2
TP1617	TR1618	TP1621	4
TR1622		35542518	1
TR11C2		35542518	

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** IC5 ***			
D1601	D1602	DIODE 152473 AT26	1
D1101	D1103	DIODE 155133	26
D1223	D1224		
D1401	D1402	D1605	
D1606	D1607	D1608	
D1610	D1611	D1612	
D1616	D1618	D1619	
D1620	D1621	D1630	
D1631	D1632	D1635	
D1636	D1637	D1638	
D1107	D1108	DIODE MA165 AT26	4
ZD1607	ZD1634	DIODE 1SS133	
ZD1607	ZD1634	ZENER DIODE RD6.25E2 AT26	1
ZD1607	ZD1634	ZENER DIODE RD6.25E2 AT26	1
ZD1607	ZD1634	ZENER DIODE RD16EE2 AT26	1
*** VARIAPL RESISTORS ***			
X11C1	RM11C1	4.19MHZ RESONATOR	1
VR12C1	VR12C2	RPLCK100K*4 1.8MH 1/16W	1
VR12C2	VR12C3	RPLCK100K*5 1.8MH 1/16W	1
VR12C3	VR12C4	R VARIABLE 2.2K*B	1
VR12C4	VR12C5	R VARIABLE 4.7K*B	1
VR12C5	VR12C6	R VARIABLE 6.8K*B	1
VR12C6	VR12C7	R VARIABLE 10K*B	1
VR12C7	VR12C8	R VARIABLE 22K*B	2
VR12C8	VR12C9	R VARIABLE 47K*B	2
VR12C9	VR1401	R VARIABLE 2.2KB	1
VR1401	VR1601	R VARIABLE 100KB	2
VR1601	VR1602	R VARIABLE 330KB	2
VR1602	VR1603	R VARIABLE 47UH	2
*** COILS & FILTERS ***			
L11601	L1161520	FILTER COIL 1000UH AT (S)	1
L1205	L1404	FILTER COIL 2200UH	2
L1409	L1217	FILTER COIL 0405 15UH,AT	1
L1206	L1207	FILTER COIL 0405 18UH,AT	2
L1203	L1219	FILTER COIL 0405 47UH,AT	4
L14C8			
L11202	L1210	FILTER COIL 0405 100UH,AT	10
L1216	L1220		
L14C6	L1410		
L1411	L1211	FILTER COIL C405 120UH,AT	1
L1211	L11061P20	FILTER COIL C405 120UH,AT	1
L14C3	L1061P32	FILTER COIL 0405 220UH,AT	1

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
U1402 CF1401	61061835 61137019	FILTER COIL 0405 330UH,AT CERAMIC FILTER 4.16MHz	1
DL1401	61551046	DELAY (COMB FILTER)	1
DL1202	61551081	1HDOL(PAL,NO1-CAN)LOW-H	1
FL1201	61827038	3.2MHz L.P.F	1
FL1402	61827066	PAL 2IN1FILTER(5.06,1.4M)	1
FL1401	61827067	4.43MHz BPF (3435)	1
X1401	61828016	LC FILTER (8KHZ TRAP)	1
*** PWB ASSYS ***			
	81674C01	PWR SLOW-TIMING PWV-1384	1
	81674N01	SUB SYSCON-6 ASSY	1
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
X1401	640004143	X TOTAL 4.43MHz (W/O-ADJ)	1
*** APPEARANCE PARTS ***			
	16286431	PWR HINGE	1
	16286931	BAND WHITE	2
	16288281	WIRERAP POST (STYLE PIN)	3
	16288391	PWB BRACKET(H7)	1
	16582441	HEAT SINK(2)	1
	16631101	SHEET	1
	16875531	SCREW M3*8*15BF	1
*** RESISTORS ***			
R1344	401KE643	R,CARRON 56H 5% 1/6W	1
R1248	401KE651	R,CARRON 12CH 5% 1/6W	1
R1245	401KE651	R,CARRON 15OH 5% 1/6W	1
R1114	R11117	R,CARRON 22CH 5% 1/6W	1
R1415	R1673	401KE659 R,CARRON 27CH 5% 1/6W	1
R1246		401KE659 R,CARRON 33OH 5% 1/6W	1
R1421		401KE661 R,CARRON 39OH 5% 1/6W	2
R1245	R1253	R,CARRON 47OH 5% 1/6W	2
R1413	R1420	401KE666 R,CARRON 51CH 5% 1/6W	1
R1236		401KE667 R,CARRON 56CH 5% 1/6W	1
R1453		401KE667 R,CARRON 68CH 5% 1/6W	1
R1136	R1225	401KE669 R,CARRON 68CH 5% 1/6W	5
R1240	R1633	401KE670 R,CARRON 75OH 5% 1/6W	1
R1410		401KE671 R,CARRON 82OH 5% 1/6W	2
R1226	R1429	401KE671 R,CARRON 1.0K 5% 1/6W	20
R1122	R1130	401KE673 R,CARRON 1.0K 5% 1/6W	4

PNPL : SYS/SER/VID PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1213	R1219	401KE673 R,CARRON 1.0K 5% 1/6W	20
R1310	R1414	R,CARRON 1.41%	1
R1417	R1423	R,CARRON 1.62%	1
R1434	R1438	R,CARRON 1.447%	1
R1629	R1675	R,CARRON 1.67%	1
R1718	R1753	R,CARRON 1.75%	1
R1258	R1371	401KE675 R,CARRON 1.2K 5% 1/6W	5
R1412	R1619	R,CARRON 1.5%	1
R1239	R1241	401KE677 R,CARRON 1.5K 5% 1/6W	6
R1259	R1333	R,CARRON 1.72%	1
R1215	R121P	R,CARRON 1.82%	1
R12P3	R1404	R,CARRON 1.84%	1
R1719	R1670	401KE681 R,CARRON 2.2K 5% 1/6W	12
R1207	R121C	401KE681 R,CARRON 2.2K 5% 1/6W	14
R1247	R1314	R,CARRON 2.47%	1
R1425	R1441	R,CARRON 2.44%	1
R1446	R1646	R,CARRON 2.67%	1
R1403	R1672	401KE681 R,CARRON 2.7K 5% 1/6W	2
R1106	R1108	401KE685 R,CARRON 3.3K 5% 1/6W	14
R111C	R1111	R,CARRON 4.07%	1
R1113	R1112	R,CARRON 4.112%	1
R1128	R1127	R,CARRON 4.127%	1
R1135	R1135	R,CARRON 4.135%	1
R128C	R1317	401KE689 R,CARRON 4.7K 5% 1/6W	9
R143C	R1623	R,CARRON 4.67%	1
R1683	R1752	R,CARRON 5.175%	1
R125C	R1767	R,CARRON 5.42%	1
R1432	R1432	R,CARRON 5.451%	1
R1661	R1677	R,CARRON 6.167%	1
R14C5	R1619	R,CARRON 6.819%	1
R1657	R1660	R,CARRON 6.9%	1
R1426	R1672	R,CARRON 6.95%	1
R1726	R1726	R,CARRON 6.95%	1
R1122	R1124	401KE697 R,CARRON 10K 5% 1/6W	14
R1201	R1216	R,CARRON 12.24%	1
R129C	R129P	R,CARRON 12.705%	1
R1312	R1315	R,CARRON 13.75%	1
R1362	R1448	R,CARRON 14.48%	1
R14C1	R141C	R,CARRON 14.77%	1
R1221	R1407	R,CARRON 14.721%	1
R1636	R1640	R,CARRON 14.643%	1
R1122	R1124	401KE697 R,CARRON 10K 5% 1/6W	14
R1675	R1676	R,CARRON 27K 5% 1/6W	2
R12C0	R1301	R,CARRON 33K 5% 1/6W	1
R1678	R1687	R,CARRON 38%	1
R1612	R1666	R,CARRON 47K 5% 1/6W	4

MODEL : SYS/SEP/VID PWR ASSY

MODEL : SYS/SER/VID PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1755	R1107	R-CARBON 47K 5% 1/6W	4
R1104	R1668	R-CARBON 51K 5% 1/6W	6
R1652	R1732	R-CARBON 51K 5% 1/6W	6
R1627	R1674	401KF715 R-CARBON 56K 5% 1/6W	2
R1604	R1607	401KF717 R-CARBON 68K 5% 1/6W	2
R1603	R1605	401KF719 R-CARBON 82K 5% 1/6W	3
R1105	R1116	401KF721 R-CARBON 100K 5% 1/6W	15
R1121	R1134	F1434	
R1405	R1422	F1434	
R162F	R1634	F1636	
R1658	R1717	F1720	
R1443	R1667	R1691	
R1222	R1659	401KF725 P-CARBON 150K 5% 1/6W	2
R1686		401KF727 R-CARBON 180K 5% 1/6W	2
R1620		401KF728 R-CARBON 200K 5% 1/6W	1
R1609		401KF729 R-CARBON 220K 5% 1/6W	1
R1641		401KF732 R-CARBON 300K 5% 1/6W	1
R1611	R1669	401KF734 R-CARBON 360K 5% 1/6W	1
R1650		401KF735 R-CARBON 390K 5% 1/6W	2
R1665		401KF737 R-CARBON 470K 5% 1/6W	1
R1730	R1645	R1652	
R1427	R1645	401KF745 R-CARBON 510K 5% 1/6W	1
R1642		401KF746 R-CARBON 560K 5% 1/6W	2
R1733		401KF747 R-CARBON 600K 5% 1/6W	2
R1372		401KF748 R-CARBON 3-3K 5% 1/6W	1
R1442		401KF749 R-CARBON 3-9K 5% 1/6W	1
R1455		401KF750 R-CARBON 5-6K 5% 1/6W	1
R1120		401KF759 R-CARBON 33K 5% 1/6W	1
R1103		401KF760 R-CARBON 200K 5% 1/6W	1
R1602		40351109 R-METAL 2-2H 5% 1W	1
R1437		40109R9201 R-FUSE 1.0H 5% 1/2W	1
R1366		40109R661 R-CARBON 47H 5% 1/4W	1
R1225		40109R667 R-CARBON 100H 5% 1/4W	1
R1101		409HR65 R-CARBON 470H 5% 1/4W	1
R1614		40109R670 R-CARBON 75CH 5% 1/4W	1
R1622		40109R671 R-CARBON 820H 5% 1/4W	1
R1363		40109R673 R-CARBON 1.0K 5% 1/4W	1
R1220		40109R675 R-CARBON 1.2K 5% 1/4W	1
R1316		40109R681 R-CARBON 2-2K 5% 1/4W	1
R1615		40109R685 R-CARBON 3-3K 5% 1/4W	1
R1618		40109R689 R-CARBON 4-7K 5% 1/4W	1
R1406		40109R693 R-CARBON 6-8K 5% 1/4W	1
R1681	R1724	40109R697 R-CARBON 10K 5% 1/4W	2
R1613		4094H699 R-CARBON 12K 5% 1/4W	1
R1431		4094H705 R-CARBON 22K 5% 1/4W	1
R1357		4094H717 R-CARBON 68K 5% 1/4W	1
R1125		4094H721 R-CARBON 100K 5% 1/4W	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1638		40109H725 R-CARRON 150K 5% 1/4W	1
R1642		40109H734 R-CARRON 360K 5% 1/4W	1
R1630		4091H751 R-CARBON 1-8M 5% 1/4W	1
R1608	R1685	40109H761 R-CARBON 4-7M 5% 1/4W	2
R1102		40912161 R-CARRON 330H 5% 1/2W	1
R1669		409P2649 R-CARRON 100H 5% 1/4W	1
		*** CAPACITORS ***	
C11C3		421AU933 C-CERAMIC 50V 0.047UF	1
C1253		421CRC15 C-CERAMIC 50V 12PF	1
C1291	C1421	421CRC17 C-CERAMIC 50V 15PF	2
C1266	C1268	421CRC19 C-CERAMIC 50V 18PF	2
C1210	C1254	421C6027 C-CERAMIC 5CV 39PF	2
C1402		421CHC31 C-CERAMIC 50V 56PF	1
C1206	C1236	421CHC35 C-CERAMIC 50V 82PF	2
C1212	C1627	421CHC37 C-CFRAMIC 5CV 100PF	2
C1227	C1231	421CHC38 C-CERAMIC 5CV 120PF	2
C1242		421CHC39 C-CERAMIC 50V 150PF	1
C1225	C1245	421CR047 C-CERAMIC 5CV 270PF	2
C1413		421CHC44 C-CERAMIC 5CV 390PF	1
C1229	C1617	421CR045 C-CERAMIC 5CV 470PF	2
C1225	C1245	421CH047 C-CERAMIC 5CV 680PF	2
C1407	C1613	421CHC49 C-CERAMIC 50V 1000PF	3
C1406		421CHC50 C-CERAMIC 5CV 4-7PF	1
C1108	C1137	421CHC53 C-CERAMIC 5CV 100PF	1
C1411		421CP239 C-CFRAMIC 5CV 150PF	1
C1410		421CP240 C-CERAMIC 50V 180PF	1
C1419		421CH241 C-CERAMIC 50V 220PF	1
C1420		421CH245 C-CERAMIC 5CV 470PF	1
C1421		421CH237 C-CERAMIC 1EV 2200PF	1
C1648		421CH455 C-CFRAMIC 1EV 3300PF	1
C1102	C1102	421CH461 C-CERAMIC 1EV 0.01UF	28
C1401	C1209	C1211	
C1416	C1221	C1232	
C1427	C1244	C1250	
C1444	C1252	C1255	
C1445	C1257	C1258	
C1402	C1240	C1245	
C1428	C1294	C1299	
C1429	C1435	C1437	
C1444			
	421CP25 C-CERAMIC 25V 0.022UF	10	
	421CP25 C-CERAMIC 50V 220PF	1	

MODEL : SYS/SFR/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C1107	421C0217	C-CERAMIC SCV 2200PF	1
C1309	42132461	C-CERAMIC 16V 0.01UF	1
C1654	42132963	C-CERAMIC 25V 0.022UF	1
C1405	429C0333	C-CERAMIC 25V 0.047UF	2
C1245	429C0337	C-CERAMIC 25V 0.1UF	1
C1275	42966547	C2V21H561J-AT	1
C1603	42966912	C-FILM 50V 0.082UF	2
C1290	42966612	C-FILM 50V 0.1UF	2
C1632	429G6915	C-METAL FILM 50V 0.15UF	1
C1753	429G6916	C-METAL FILM 50V 0.18UF	1
C1751	429G6917	C-METAL FILM 50V 0.22UF	1
C1625	429G6919	C-METAL FILM 50V 0.33UF	1
C1650	429G8261	C-METAL FILM 50V 6800PF	1
C1619	429G8263	C-METAL FILM 50V 0.01UF	1
C1622	C1630	429G8269	3
C1243	429G6916	C-METAL FILM 50V 0.033UF	1
C1623	429G6731	C-FILM 50V C-33 UF 5X	1
C1651	42976813	C-METAL FILM 50V 0.1UF	1
C1621	42978161	C-METAL FILM 50V 6800PF	1
C1224	C1752	42978168	1
C1233	C1241	C-ELEC 6.3V 22UF	2
C1258	C1304	430AR101	1
C1422	C1434	C-ELEC 6.3V 47UF	15
C1440	C1406	430AR102	1
C1642	C1647	C-ELEC 6.3V 47UF	1
C1105	C1207	430A81C4	1
C1441	C1605	C-ELEC 6.3V 100UF	1
C1610	C1611	430A81C5	1
C1624	430A81C5	C-ELEC 10V 220UF	1
C1276	430A8107	C-ELEC 10V 47UF	1
C1289	C1292	430A8109	1
C1432	C1614	C-ELEC 16V 100UF	6
C1635	C1645	430A8111	1
C1436	430A8112	C-ELEC 16V 47UF	1
C1286	430A8117	C-ELEC 16V 100UF	1
C1104	C1293	430A8117	1
C1222	430A8114	C-ELEC 25V 4.7UF	1
C1601	430A8118	C-ELEC 25V 47UF	1
C1276	C1267	430A8119	1
C1404	430A8125	C-ELEC 35V 3.3UF	1
C1216	430A8126	C-ELEC 50V 2.2UF	1
C1604	C1265	430A8128	1
C1751	C1612	C-ELEC 50V 10UF	7
C1113	C1725	C-ELEC 50V 2.2UF	3
C1620	430A8144	C-ELEC 6.3V 220UF,AT	1
C1753	430C112P	C-ELEC 50V 1UF	1
C1770	433A6104	C-ELEC 50V 3.3UF -5BSRRA,AT	1
C1634	4393C021	C-ELEC 50V 1UF	1
C1602	439P53C6	C-ELEC 6.3V 470UF	2

MODEL : NORMAL AUDIO PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
I14RC1		*** ICS ***	1
		37101311 IC LA7098 (AUDIO)	1
V84CC1		*** TRANSISTORS ***	1
TR4CC1		75055712 IR 2SC2701 1	1
		VAPITABLE RESISTORS ***	1
V84CC2		41951245 P-VARIABLE 2.2KP	1
V84CC1		41951256 R-VARIABLE 1CKB	1
		COILS & FILTERS ***	1
L4CC1	L4CC02	L10F210D FILTER COIL 8222J,AT	2
	L4CC1	L10G1527 FILTER COIL 4700H AT(S)	1
	L4CC1	L1911215 OSC COIL	1
		APPARANCE PARTS ***	1
A107		16445F02 SLIDE MINGE	?
		RESISTORS ***	1
R4U22		4C11K1625 R-CARBON 1UH 5X 1/6W	1
P4021		4C11K1621 R-CARBON 12H 5Z 1/6W	1
R4C16		4C11K1627 R-CARBON 56H 5Z 1/6W	1
R40CS		4C11K1626 R-CARBON 560H 5Z 1/6W	1
R4017	R4G15	4C11K1627 R-CARBON 1.0K 5Z 1/6W	2
		4C11K1625 R-CARBON 1UH 5X 1/6W	1
		4C11K1621 R-CARBON 12H 5Z 1/6W	1
		4C11K1627 R-CARBON 3.9K 5Z 1/6W	1
		4C11K1626 R-CARBON 4.7K 5Z 1/6W	1
		4C11K1627 R-CARBON 9.1K 5Z 1/6W	1
		4C11K1725 R-CARBON 22K 5Z 1/6W	1
		4C11K1721 R-CARBON 2.2K 5Z 1/6W	1
		4C11K1727 R-CARBON 4.7K 5Z 1/6W	1
		4C11K1726 R-CARBON 6.8K 5Z 1/6W	1
		4C11K1724 R-CARBON 1.1K 5Z 1/6W	1
		4C11K1715 R-CARBON 56K 5Z 1/6W	1
		60027101 R-CARBON 1.0H 5Z 1/4W	1
		4C158226C R-CARBON 1.5M 5Z 1/4W	1

MODEL : NORMAL AUDIC PNP ASS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C4026	421C0R45	C,CERAMIC 50V 1000PF	1
C4027	42331C52	C,CERAMIC 50V 200PF	1
C4024	429R8251	C,METAL FILM 50V 1000PF	1
C4023	42968257	C,METAL FILM 50V 1500PF	1
C4025	429R8259	C,METAL FILM 50V 4700PF	2
*** TRANSISTORS ***			
C4008	C4009	42968264 C,METAL FILM 50V 0.012UF	2
C4C15	429R8268	C,METAL FILM 50V 0.027UF	1
C2C01	42968471	C,FILM 50V 680PF 5%	1
C4005	42974161	C,FILM 100V 0.033UF 5%	1
C4012	430RA109	C,EFFC 16V 10UF	1
C4011	C4022	430RA8110 C,EFFC 16V 22UF	2
C4007	C4C10	430RA8112 C,ELEC 16V 47UF	1
C4019	C4C21	439A1583 C,ELEC 10UF 16V	1
C4018	439A1602	C,ELEC 10UF 50V	1
C4004			
*** DIODES ***			
D2005	D2006	D2011 360KA009 DIODE 152473 AT26	3
D2001	D2002	D2003 360KA025 DIODE 155133	17
D2004	D2007	D2008	
D2009	D2C10	D2C12	
D2013	D2014	D2C15	
D2016	D2C17	D2C22	
D2026	D2031	360KC972 DIODE MA165 AT26	1
D2047	ZD2C01	360001025 DIODE 155133	1
ZD2C01		369KE180 ZENER DIODE RD9-1EB3,AT26	1
LD2C02	LD2003	36904263 LED RED SLR-34VC3	2
*** VARIABLE RESISTORS ***			
X2001		39080023 4.19MHZ RESONATOR	1
*** RELAYS & SWITCHES ***			
SW2C01	SW2002	SW2C04 653330C52 TACT SWITCH	19
SW2C06	SW2007	SW2C08	
SW2C09	SW2010	SW2C12	
SW2C14	SW2015	SW2C16	
SW2C17	SW2018	SW2C20	
SW2C21	SW2022	SW2C26	
SW2C37			

MODEL : TIMER/FUNCTION PWE A

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC2CC3		37101286 IC M5278L56	1
IC2001		37151363 MOS UPD75216ACW-021 N9055	1
*** TRANSISTORS ***			
TR2C11		35501931 TR 2SC2785(E,F,H,J)AT	1
TR2C02	TR2003	TR2004 35502716 BA1F4M	3
TR2C01		355K2220 DIGITAL TRANSISTOR	1
TR2C05		35542716 BA1F4M (C22K)	1
*** DIODES ***			
D2006	D2007	D2011 360KA009 DIODE 152473 AT26	3
D2001	D2002	D2003 360KA025 DIODE 155133	17
D2004	D2007	D2008	
D2009	D2C10	D2C12	
D2013	D2014	D2C15	
D2016	D2C17	D2C22	
D2026	D2031	360KC972 DIODE MA165 AT26	1
D2047	ZD2C01	360001025 DIODE 155133	1
ZD2C01		369KE180 ZENER DIODE RD9-1EB3,AT26	1
LD2C02	LD2003	36904263 LED RED SLR-34VC3	2
*** VARIABLE RESISTORS ***			
X2001		39080023 4.19MHZ RESONATOR	1
*** RELAYS & SWITCHES ***			
SW2C01	SW2002	SW2C04 653330C52 TACT SWITCH	19
SW2C06	SW2007	SW2C08	
SW2C09	SW2010	SW2C12	
SW2C14	SW2015	SW2C16	
SW2C17	SW2018	SW2C20	
SW2C21	SW2022	SW2C26	
SW2C37			
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
X2002		64004151 XTAL 32.768KHZ	1
FD2C01		67930062 FIPSTM7 (VPS)	1

MODEL : TIMER/FUNCTION PWB A

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** APPEARANCE PARTS ***			
R2040	R2041	16288281 WIREFRAMES POST (STYLE PIN) 16445962 HOLDER 16448712 LED HOLDER (3KEY)	1
R2043	R2C37	401KE657 R,CARBON 220H 5% 1/6W	7
R2044	R2042	401KE661 R,CARBON 330H 5% 1/6W	2
R2045	R2C26	401KE665 R,CARBON 470H 5% 1/6W	1
R2046	R2C01	401KE673 R,CARBON 1.0K 5% 1/6W	1
R2047	R2C13	401KE697 R,CARBON 10K 5% 1/6W	8
R2048	R2C09	401KE710 R,CARBON 68K 5% 1/6W	1
R2049	R2012	401KE711 R,CARBON 100K 5% 1/6W	1
R2050	R2C45	401KE721 R,CARBON 330K 5% 1/6W	4
R2051	R2028	401KE730 R,CARBON 220K 5% 1/6W	1
R2052	R2C30	401KE733 R,CARBON 68K 5% 1/6W	2
R2053	R2C33	401KE741 R,CARBON 100K 5% 1/6W	1
R2054	R2024	401KE749 R,CARBON 3•3K 5% 1/6W	1
R2055	R2C02	409HB685 R,CARBON 10K 5% 1/4W	1
R2056	R2CC3	409HB697 R,CARBON 100K 5% 1/4W	1
R2057	R2049	409HB721 R,CARBON 100H 5% 1/6W	1
R2058	R2008	409HB741 R,CERAMIC 50V 100PF	1
*** CAPACITORS ***			
C2016	C2024	4210B37 C,CERAMIC 50V 100PF	7
C2026	C2027	4210B37 C,CERAMIC 50V 100PF	1
C2029	C2008	4210B049 C,CERAMIC SCV 1000PF	1
C2007	C2009	4210B237 C,CERAMIC SCV 100PF	4
C2010	C2023	4210B461 C,CERAMIC 16V 0.01UF	2
C2003	C2C15	4210B863 C,CERAMIC 25V 0.022UF	3
C2006	C2013	423A2C37 C,CERAMIC 50V 47PF	2
C2012	C2005	430AB109 C,ELEC 16V 10UF	3
C2001	C2C14	430AB124 C,ELEC 50V C-1UF	1
C20C2	C2C21	430AB131 C,ELEC 50V 4.7UF	1
C2C21	C2C04	430AB351 C,ELEC 50V 3.3UF	1

MODEL : SUB FUNCTION PWB ASS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** DIODES ***			
D2030	D2032	360KAC25 DIODE,1SS133	6
D2034	D2036	360KCC972 DIODE MA165 AT26	1
D2045	D2C45	360K4262 LED GRN SLR-34MC3	1
LD2C01			
*** VARIABLE RESISTORS ***			
VR2C01	VR2CG2	41504194 VR RK931 50CKB (L=20) 41504202 VR 20KB RK931 (L=20)	1
SW2C38	SW2039	SW2C41 65180052 SLIDE SW 1-1-2	4
SW2042	SW2013	SW2019 653330052 TACT SWITCH	1
SW2C40	SW2028	SW2C31 65180060 SW,SLIDE	1
SW2C23	SW2028	SW2C31 16447151 LED HOLDER B	1
*** APPEARANCE PARTS ***			
R2036		401KE661 R,CARBON 330H 5% 1/6W	1
*** RESISTORS ***			
R2037	R2C27	401KE657 R,CARBON 220H 5% 1/6W	7
R2038	R2C37	401KE661 R,CARBON 330H 5% 1/6W	2
R2039	R2C26	401KE665 R,CARBON 470H 5% 1/6W	1
R2040	R2C01	401KE673 R,CARBON 1.0K 5% 1/6W	1
R2041	R2C13	401KE697 R,CARBON 10K 5% 1/6W	8
R2042	R2C09	401KE710 R,CARBON 68K 5% 1/6W	1
R2043	R2012	401KE711 R,CARBON 100K 5% 1/6W	1
R2044	R2C45	401KE721 R,CARBON 330K 5% 1/6W	4
R2045	R2028	401KE730 R,CARBON 220K 5% 1/6W	1
R2046	R2C30	401KE733 R,CARBON 68K 5% 1/6W	2
R2047	R2C33	401KE741 R,CARBON 100K 5% 1/6W	1
R2048	R2024	401KE749 R,CARBON 3•3K 5% 1/6W	1
R2049	R2C02	409HB685 R,CARBON 10K 5% 1/4W	1
R2050	R2CC3	409HB697 R,CARBON 100K 5% 1/4W	1
R2051	R2049	409HB721 R,CARBON 100H 5% 1/6W	1
R2052	R2008	409HB741 R,CERAMIC 50V 100PF	1
*** CAPACITORS ***			
C2020		43920001 C,ELEC DOUBLE LAYER	1

MONFL : TUNER/IF PAK ASSY

MONFL : TUNER/IF PAK ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CTR R TUNER ***			
	34303021	U/V TUNER(CCATV)	1
*** IC'S ***			
IC31C4	37101127	IC UPC-393C	1
IC30C1	37101240	IC LA7530	1
IC31C3	37101284	IC LA721C	1
IC31C2	37151324	POS M58655P (FAROM)	1
IC31C1	37903162	IC LA791C (x0260C)	1
*** TRANSISTORS ***			
TP31C8	35004113	TR/25A916, M	1
TP31C4	35055312	TR 2SC2501 L	1
TP31C5	35058012	TR 2SC2352 L	1
TP31C3	35501531	TR 2SC2785 (E,F,H,J)AT	3
TP30C1	TP31C2	TR 2SC1175 (E,F,H,J)	4
TP30C1	TP3007	TR 31C11	1
TP31C2	TP31C1	TR 2SC1131	1
TP30C4	35940502	TR 2SC1730 L	1
*** DIODES ***			
D1101	0310C2	360KACCE DIODE 1SS133	6
D31C4	0710C7	360306C ZENER DIODE UPC-S74J	1
ZD31C1			
*** VARIABLE RESISTORS ***			
X31C1	36080012	CERAMIC RESC. CSP500ES	1
VR31C1	4155114F	R.VARIABLE 10K, P.	1
*** COILS & FILTERS ***			
L31C2	41022765	COIL FILTER	1
L31C4	41022772	COIL FILTER	1
L31C5	41011531	SAW COIL 1R8	1
L31C2	41011575	SAW COIL 2R7	1
PL11C1	411C114	CERAMIC DISCRIMINATOR	1
PL31C1	411853012	SIE FILTER 5.5MHz	1
PL31C2	41137C37	CERAMIC TRAP TP55.5MHz	1
PL21C1	41128022	VIF SAWF SAF38.9M2R72Z	1
130C1	41F15155	V.IFT (9.5TURN)	2

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
	70760009	CARLF. CONNECTOR (110MM)	1
*** APPEARANCE PARTS ***			
	165P2402	TUNER SHIELD CASE	1
*** RESISTORS ***			
R3037	401KE625	R-CARBON 10H 5% 1/6W	1
R3035	401KE641	R-CARBON 47H 5% 1/6W	1
R3025	401KE645	R-CARBON 68H 5% 1/6W	1
R3026	401KE649	R-CARBON 100H 5% 1/6W	1
R3023	401KE653	R-CARBON 150H 5% 1/6W	1
R3032	401KE657	R-CARBON 220H 5% 1/6W	1
R3003	401KE659	R-CARBON 270H 5% 1/6W	1
R3011	401KE661	R-CARBON 330H 5% 1/6W	3
R3024	401KE662	R-CARBON 390H 5% 1/6W	1
R3104	401KE665	R-CARBON 47CH 5% 1/6W	2
R301P	401KE669	R-CARBON 680H 5% 1/6W	2
R3007	401KE671	R-CARBON 1.0K 5% 1/6W	7
R3127	401KE673	R-CARBON 1.0K 5% 1/6W	7
R3143	401KE675	R-CARBON 1.2K 5% 1/6W	1
R3142	401KE681	R-CARBON 2.0K 5% 1/6W	7
R3109	401KE683	R-CARBON 3.3K 5% 1/6W	1
R3110	401KE685	R-CARBON 3.3K 5% 1/6W	1
R3122	401KE687	R-CARBON 3.3K 5% 1/6W	1
R311C	401KE689	R-CARBON 3.3K 5% 1/6W	1
R3134	401KE691	R-CARBON 3.9K 5% 1/6W	1
R30C2	401KE692	R-CARBON 4.7K 5% 1/6W	5
R3125	401KE694	R-CARBON 4.7K 5% 1/6W	4
R30C5	401KE695	R-CARBON 5.6K 5% 1/6W	1
R3121	401KE697	R-CARBON 6.8K 5% 1/6W	1
R3112	401KE698	R-CARBON 10K 5% 1/6W	2
R3072	401KE699	R-CARBON 12K 5% 1/6W	1
R2141	401KE701	R-CARBON 15K 5% 1/6W	1
R3114	401KE702	R-CARBON 18K 5% 1/6W	4
R2146			
R3113	401KE703	R-CARBON 22K 5% 1/6W	2
R3012	401KE704	R-CARBON 27K 5% 1/6W	1
R3145	401KE705	R-CARBON 47K 5% 1/6W	1
R3147	401KE717	R-CARBON 68K 5% 1/6W	1
R31C7	401KE720	R-CARBON 220K 5% 1/6W	2

MODEL : TUNER/IF PCB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R3144	401KE733	R-CARBON 33Ω 5% 1/6W	1
R31C4	R3106	401KE737 R-CARBON 470K 5% 1/6W	2
R3119		401KE741 R-CARBON 48ΩK 5% 1/6W	1
R3118		401KE745 R-CARBON 1.0M 5% 1/6W	1
R3133		40809989 R-FUSE 2.2H 5% 1/6W	1
R3152		409HB641 R-CARBON 47H 5% 1/4W	1
R3137	R3138	409HB721 R-CARBON 160K 5% 1/4W	2
R3027	R3C31	40913109 R-CARBON 2.2M 5% 1/4W	3
R3151		40913125 R-CARBON 10H 5% 1/4W	1
*** CAPACITORS ***			
C311C		421CBC43 C-CERAMIC 5CV 530PF	1
C31C9	C3118	421CB049 C-CERAMIC 5CV 1000PF	2
C3007	C3010	421CB461 C-CERAMIC 16V 0.01UF	12
C3014	C3015		
C3031	C3032		
C3034	C3101		
C3061	C3C02		
C312C		421D8133 C-CERAMIC 25V 0.01UF	6
C3004		423A2C15 C-CERAMIC 5CV 10PF	1
C3018		423A2025 C-CERAMIC 5CV 15PF	1
C3025		423A6C03 C-CERAMIC 5CV 3PF	1
C3011	C3012	423A6C40 C-CERAMIC 5CV 62PF	2
C3CC5		429GB267 C-METAL FILM 50V 0.022UF	1
C3008		430A8109 C-ELEC 1KV 16UF	1
C3019		430A8110 C-ELEC 1KV 22UF	1
C3016	C3021	430A8112 C-ELEC 1KV 47UF	4
C3115			
C3111	C3114	430A8127 C-ELEC 50V 0.47UF	2
C3003	C3108	430A8128 C-ELEC 50V 1UF	2
C3106			
C3117		430A8130 C-ELEC 6.3V 47UF	1
C3102	C3104	430B6068 C-ELEC 50V C.22UF	1
		43018103 C-ELEC 6.3V 3.3UF	1
		439HB0049 C-ELEC 50V C.22UF	1
*** RESISTORS ***			
R509	R510	R-CAPTON 401KF625 R-CAPTON 10H 5% 1/6W	2
R50P		401KF633 R-CAPTON 22H 5% 1/6W	1
R50C		401KF643 R-CAPTON 56H 5% 1/6W	1
R504		401KF649 R-CAPTON 100H 5% 1/6W	1
R505	R51E	401KF657 R-CAPTON 22H 5% 1/6W	2
R515	R516	401YF659 R-CAPTON 27CH 5% 1/6W	1
R507	R511	401YF661 R-CAPTON 33CH 5% 1/6W	3
R503	R520	401YF669 R-CAPTON 47CH 5% 1/6W	2
R517		401YF671 R-CAPTON 82CH 5% 1/6W	1
R522		401YF673 R-CAPTON 1.1K 5% 1/6W	4
R513	R521	401YF677 R-CAPTON 1.5K 5% 1/6W	3
R502		401YF679 R-CAPTON 1.8K 5% 1/6W	1
R530		401KF685 R-CAPTON 2.3K 5% 1/6W	1
R501		401KF693 R-CAPTON 4.8K 5% 1/6W	1
R512	R524	401KF697 R-CAPTON 10K 5% 1/6W	3

PARTL : RFF AMP PWB ASSY

MODEL : CN SCREEN PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C5C1	4210PC17	CERAMIC 5CV 15PF	1
C516	4210PC25	CERAMIC 50V 33PF	1
C51P	4210PC35	CERAMIC 5CV 82PF	1
C52S	4210PF4A	CERAMIC 5CV 560PF	1
C517	4210PF451	CERAMIC 1KV 1500PF	1
C5D6	4210PF457	CERAMIC 1KV 4700PF	1
C508	4210RH461	CERAMIC 1KV 0.01UF	3
C5C4	4210HF67	CERAMIC 25V 0.022UF	4
C524	4210S00	CERAMIC 5CV 0.022UF	2
C507	4210S00	CERAMIC 25V 0.1UF	1
C5C2	4290U337	CERAMIC 25V 0.22UF	1
C5C5	4290U337	CERAMIC 25V 0.1UF	1
C512	4200A107	C-ELEC 1KV 47UF	2
C521	4300A109	C-ELEC 1KV 10UF	1
C507	4300A112	C-ELEC 1KV 47UF	1
C511	4300A125	C-ELEC 5CV 0.22UF	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** SYMBOLS ***			
IC6CC1	371151375	MCS M5C455-C53SP (US CSD)	1
TP6CC1	TR6005 TR6006	TR 2SC2785(F,F,H,J)AT	3
TP6CC2	TR6003 TR6004	355K1131 TR,2SA1175 (E,F,H,J)	2
D60C1	360KAG25	DIODE, 1SS133	1
*** PARTS ***			
L60C2	61U61E22	FILTER COIL C405 27UH,AT	1
L60C1	61061E20	FILTER COIL C405 100UH,AT	1
*** APPEARANCE PARTS ***			
R60129	4011Y1E75	SCREEN FWR PRACKET	1
R6015	4011Y1E77	SCREEN FWR PRACKET	1
R6C11	4011Y1E81	SCREW M3x8*15RF	1
*** RESISTORS ***			
R6016	4011Y1E45	R,CARPN 1.0K 5% 1/6W	1
R6013	4011Y1E45	R,CARPN 2.2K 5% 1/6W	2
R6015	4011Y1E45	R,CARPN 3.3K 5% 1/6W	1
R6016	4011KFE40	R,CARPN 160H 5% 1/6W	1
R6004	4011KFE57	R,CARPN 22CH 5% 1/6W	1
R6003	4011KFE71	R,CARPN 82OH 5% 1/6W	1
R6015	4011KFE77	R,CARPN 1.0K 5% 1/6W	1
R6C11	4011Y1E71	R,CARPN 2.2K 5% 1/6W	2
R6013	4011Y1E71	R,CARPN 3.3K 5% 1/6W	1
R6015	4011KFE40	R,CARPN 160H 5% 1/6W	2
R6004	4011KFE57	R,CARPN 22CH 5% 1/6W	1
R6003	4011KFE97	R,CARPN 82OH 5% 1/6W	1
R6070	4011K74	R,CARPN 10K 5% 1/6W	3
R6070	4011K74	R,CARPN 15K 5% 1/6W	2
R60C2	4011K71	R,CARPN 15K 5% 1/6W	2
R6C14	4011K72	R,CARPN 22K 5% 1/6W	5
R6072	4011K72	R,CARPN 22K 5% 1/6W	5
R6072	4011K72	R,CARPN 43Y 5% 1/6W	1
R6C06	4011K717	R,CARPN 47K 5% 1/6W	1
R6C25	4011K717	R,CARPN 47K 5% 1/6W	1
R60C8	4011K715	R,CARPN 56K 5% 1/6W	1
R6C05	4011Y1E721	R,CARPN 16CL 5% 1/6W	1
R6C09	4011Y1E733	R,CARPN 33CK 5% 1/6W	1
R6C12	4011K777	R,CARPN 47OK 5% 1/6W	1

MODEL : ON SCREEN PWP ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C60C4	C60C5	CERAMIC 5CV 10PF	2
C6010	C6014	CERAMIC 5CV 100PF	2
C6016	C6017	CERAMIC 16V 2700PF	2
C60G7	C6012	CERAMIC 25V 0.022UF	2
C60C3		CERAMIC 5CV 82PF	1
C60C1	C60C2	C-ELEC 6.3V 47UF	2
C6013		C-ELEC 10V 22UF	1
C60C5		C-ELEC 1KV 22UF	1
C6011		C-ELEC 5CV 0.47UF	1
C60C6	C6015	C-ELEC 5CV 1UF	2

MODEL : DIGITAL PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC5C12	IC5013	L7016 ANALOG SW	2
IC5015		37101274 IC BA236	1
IC5C04	IC5005	37101318 IC MN 3106	2
IC5C02		37101332 IC HA19216	1
IC5003		37101333 IC HA19508	1
IC5014		MOS HD14040B	1
IC5C06	IC5007	MOS UPD4164CF-12	6
IC5009	IC5010	MOS UPD65C316-153-12	1
IC5001		37151355 MOS UPD65C316-153-12	1
*** TRANSISTORS ***			
TR5C02	TR5003	TR5C05	35501631 TR 2SC2785(E,F,H,J)AT
TR5006	TR5007	TR5C10	15
TR5C13	TR5016	TR5018	
TR5C19	TR5022	TR5C25	
TR5C33	TR5037	TR5C39	
TR5C40		35502710 TR,DTC124ES,AT	1
TR5C15	TR5026	TR5035	35502716 TR,BA1F4M
TR5036			
TR5C38		35502717 TR,BA1L4M	1
TR5001	TR5009	TR5C11	355K1131 TR,2SA1175 (E,F,H,J)
TR5014	TR5017	TR5C23	9
TR5030	TR5031	TR5034	
TR5032		355K2110 BN1F4M (A,22K) AT	1
TR5C21		355K2111 BN1L4M (A,47K) AT	1
TR5043		35541931 TR,2SC2785(E,F,H,J)	1
TR5041	TR5042	35542710 DTC 124ES	2
*** DIODES ***			
D5001	D5002	D5003	360KAC25 DIODE,1SS133
D5004	D5005	D5008	
D5010	D5011	D5012	
D5013	D5015	D5016	
D5017	D5021	D5022	
D5024	D5025	D5026	
D5023	D5027	360001025 DIODE 1SS133	2
ZD5CC1		36905040 ZENER,DIODE RD-5.1E82-H	1
ZD5CC2		36905141 ZENER DIODE RD2.0E8(A)	1
*** VARIABLE RESISTORS ***			
VR5CC3		41951245 R,VARIABLE 47CB	1
VR5C01	VR5002	41951254 R,VARIABLE 10KB	2
VR5CC4	VR5005	41951260 R,VARIABLE 100KB	2

MODEL : DIGITAL PWR ASSY

MODEL : DIGITAL PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** COILS & FILTERS ***			
L5011	61061511	FILTER COIL 3.3UH AT (S)	1
L5008	61061522	FILTER COIL 27UH AT (S)	1
L5001	L5002	61061623 FILTER COIL 33UH AT (S)	8
L5004	L5006	61071618 COIL, FILTER 12UH(S)	1
L5013	L5014	61061624 FILTER COIL 39UH AT (S)	1
L5010	L5015	61827C39 4.43MHz B.P.F	1
FL5CC2	FL5CO2	61827C65 5.0MHz L.P.F	1
FL5CO1		LFF ZLB-SM1845	1
*** APPEARANCE PARTS ***			
16286431	PWB HINGE		2
16448542	LOCK HANGER		1
16582911	DIGITAL PARTS SHIELD		1
16582951	DIGITAL PATTERN SHIELD		1
16631251	SHEET		1
*** RESISTORS ***			
R5074	R5013	401KE653 R,CARBON 150H 5X 1/6W	1
R5012	R5045	401KE661 R,CARBON 330H 5X 1/6W	1
R5064		401KE665 R,CARBON 470H 5X 1/6W	1
R5020		401KE666 R,CARBON 510H 5X 1/6W	1
R5065		401KE667 R,CARBON 560H 5X 1/6W	1
R5062	R5003	401KE669 R,CARBON 680H 5X 1/6W	1
R5002	R5014	401KE673 R,CARBON 1.0K 5X 1/6W	15
R5026	R5027	R5029	
R5030	R5049	R5051	
R5055	R5056	R5068	
R5063	R5076	R5077	
R5024	R5107	R5011	
R5048	R5107	R5011	
R5010	R5011	401KE675 R,CARBON 1.2K 5X 1/6W	1
R5048	R5107	401KE678 R,CARBON 1.6K 5X 1/6W	2
R5010	R5011	401KE679 R,CARBON 1.8K 5X 1/6W	2
R5022	R5128	R5133	
R50C7	R5025	R5006	
R50DC4	R5016	R5016	
R5084	R5132	R5101	
R5094	R5092	R5101	
R5066	R5101	R5101	
R51C3			
R5CC5	R5C08	R5018	
R5015	R5C44	R5117	
R5073	R5G83	R5117	

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** DIGITAL PWR ASSY ***			
R5113	R5114	R5115	401KE689 R,CARBON 4.7K 5X 1/6W
R5116	R5117	R5121	
R5122	R5123	R5126	
R5035		401KE693 R,CARBON 6.8K 5X 1/6W	1
R5070		401KE695 R,CARBON 8.2K 5X 1/6W	1
R5015	R5054	R5131	401KE697 R,CARBON 10K 5X 1/6W
R5137	R5081	R5093	401KE699 R,CARBON 12K 5X 1/6W
R5069	R5093	R5096	401KE7C1 R,CARBON 15K 5X 1/6W
R5106	R5135	R5106	401KE7C3 R,CARBON 18K 5X 1/6W
R5050	R5104	R5108	401KE721 R,CARBON 100K 5X 1/6W
R5086		401KE725 R,CARBON 150K 5X 1/6W	1
R5088		401KE735 R,CARBON 390K 5X 1/6W	1
R5125	R51C9	R5127	401KE741 R,CARBON 680K 5X 1/6W
R5129		401KE745 R,CARBON 1.0M 5X 1/6W	3
R5124		40105235 R,CARBON 390K 5X 1/6W	1
R5134		40105657 R,CARBON 220H 5X 1/6W	1
R5127		40105660 R,CARBON 300H 5X 1/6W	1
R5139		40105695 R,CARBON 8.2K 5X 1/6W	1
R5136		40105697 R,CARBON 10K 5X 1/6W	1
R5138		401057C4 R,CARBON 20k 5X 1/6W	1
R5095		40105727 R,CARBON 180K 5X 1/6W	1
*** CAPACITORS ***			
C5064		421CB027 C,CERAMIC 50V 39PF	1
C5020		421CB029 C,CERAMIC 50V 47PF	1
C5041		421CB43 C,CERAMIC 50V 330PF	1
C5066		421CB45 C,CERAMIC 50V 470PF	1
C5072		421CB454 C,CERAMIC 16V 2700PF	1
C5017	C5008	C5009	421CB457 C,CERAMIC 16V 4700PF
C5011	C5012	C5C15	421CB863 C,CERAMIC 25V 0.022UF
C5034	C5036	C5C49	18
C5040	C5048	C5C49	
C5050	C5057	C5C62	
C5065	C5079	C5081	
C5086	C5084	C5082	
C5093	C5095	C5C53	
C5055	C5056	C5C56	
C5073	C5016	C5077	42132C23 C,CERAMIC SCV 27PF
C5077	C5077	C5077	42132C43 C,CERAMIC 50V 330PF
C5077	C5077	C5077	42132B63 C,CERAMIC 25V 0.022UF
C5076	C5076	C5076	4206G8258 C,METAL FILM 50V 0.47UF
C5076	C5076	C5076	4206G6908 C,FILM 50V 0.039UF
C5076	C5076	C5076	4206G912 C,FILM 50V 0.082UF
C5076	C5076	C5076	4206G6921 C,METAL FILM 50V 0.47UF
C5076	C5076	C5076	4206G8258 C,METAL FILM 50V 3900PF

MODEL : DIGITAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C5085	42968261	C-METAL FILM 50V 6800PF	1
C5085	42968268	C-METAL FILM 50V 0.027UF	1
C5021	42968269	C-METAL FILM 50V 0.033UF	1
C5059	42910C44	C-CERAMIC 50V 0.1UF	1
C5052	42978169	C-METAL FILM 50V 0.033UF	1
C5023	42978269	C-METAL FILM 50V 0.033UF	1
C5082	430A8101	C-ELEC 6.3V 22UF	1
C5007	C5C35	C-ELEC 6.3V 100UF	7
C5047	C5074	C-ELEC 6.3V 100UF	7
C5080	430A8109	C-ELEC 16V 10UF	1
C507C	430A8110	C-ELEC 16V 22UF	7
C5022	C5C29		1
C5031	C5037		1
C5061	C5068		1
C5005	C5025	430A8112 C-ELEC 16V 100UF	3
C5075	430A8128	C-ELEC 50V 1UF	1
C5028	430A8131	C-ELEC 50V 4.7UF	1
C5087	430A8103	C-ELEC 6.3V 47UF	1
C5013	C5C60	C-ELEC 6.3V 100UF	2
C5050	43018105	C-ELEC 10V 22UF	1
C5067	43018110	C-ELEC 16V 22UF	1
C5006	43018112	C-ELEC 16V 47UF	1
C5038	43018113	C-ELEC 16V 100UF	1
C5002	4331010	C-ELEC 16V 10UF	1

KU0FL : VFS DECCFF. F4E ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
		*** ICS ***	1
IC871		371013C9 IC SA5235	1
IC872		3710131C IC SAF1135	1
		*** DIODES ***	1
		360KA025 DIODE,1SS133	1
D871		*** COILS & FILTERS ***	1
L871		61067C17 COIL,FILTER 1CUH	1
		*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***	1
X871		64004146 XITAL HC-49U 10.0000MHz	1
		*** RESISTORS ***	1
R872	R872	401KE67 R,CAFEON 10K 5% 1/64	1
R871		401KE721 R,CAFRON 100K 5% 1/64	1
		*** CAPACITORS ***	1
C872	C875	421AC426 C-CERAMIC SCV 0.022UF	1
C875	C871	421CC217 C-CERAMIC SCV 100PF	1
C877	C873	42966500 C- FILM 50V 4700PF 52	1
C862	C879	423A1C42 C-CERAMIC SCV 82PF	1
C877	C878	423A1C42 C-CERAMIC SCV 100PF	1
C874	C871	424EF164 C-METAL FILM 13V 1.47UF	1
C874	C871	421LA112 C-ELEC 25V 4.7UF	1
C874	C871	421LA112 C-ELEC 25V 2.2UF	1

MODEL : CHASSIS PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** PWB ASSYS ***			
PA01	E1674F01	SYS/SEER/VIL PWB ASSY	1
PA02	E1674F01	INHERIT FWD ASSY	1
PA06	E1674F01	INHERIT/FUNCTION PWB ASSY	1
PA23	E1674G01	DIGITAL PWB ASSY	1
PA08	E1674H01	INTERNAL AUDIC PWB ASSY	1
PA11	E1674K01	SUP. FUNCTION PWB ASSY	1
PA27	E1674L01	VPS DECODER PWB ASSY	1
PA21	E1674U01	OP. SCREEN PWB ASSY	1
PA12	E16P3101	F/F AMP PWB ASSY	1
PA18	795674K1	POWER/RFG UNIT (DG-6-Z)	1

MODEL : MECHANICAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** MECHANICAL PARTS ***			
B0C3	16177871	S. SOFT BRAKE ARM ASSY	1
B004	16177882	TU-SOFT BRAKE ARM ASSY	1
B0C5	16177022	LOADING UP ASSY	1
B0C6	16177932	LOADING LOW ASSY	1
B007	16178003	C-BRAKE ASSY	1
B010	16178062	S-PFFL DISK ASSY	1
B012	16178223	GUITAR ROLLER ASSY	1
B015	16178301	EARTH PLATE S.A.	1
B009	16178392	MOOF GEAR ASSY	1
B001	16179853	RFL. DISK ASSY (2)	1
B002	16180351	S-LOADING POST ASSY	1
B071	16180503	IMPEDANCE ROLLER ASSY	1
B011	16180801	R-ROLLER ASSY	1
B015	16182101	TU SLANT RASE ASSMBLY	1
B001	16183542	TENSION ARM ASSY (W2)	1
B094	16183551	TENSION HAND ASSY (W2)	1
B095	16183561	BRAYE ARM (R)ASSY (W2)	1
B016	16183571	BRAYE ARM (L)ASSY (W2)	1
B091	16183581	CONNECTED ARM ASSY	1
B092	16183591	LOCK LEVER ASSY	1
B094	16183611	S. LINK ARM ASSY	1
B095	16183632	S. LINK ASSY	1
B016	16183642	REVERSE ARM ASSY	1
B066	16183652	PITCH RCLLER ARM ASSY (W2)	1
B069	161F3671	WCLL CAP ASSY (W2)	1
B073	16183921	LED HOLDER ASSY (W2)	1
B093	16184071	H-PAVE LINK ARM ASSY (DC)	1
B084	16184371	R-DRIVE ASSY (W2)	1
B067	161P671	PINCH-LINK ASSY	1
B018	162P7641	NUT	4
B023	162F8C01	POLY SLIDER	2
B019	162P781	CLAMP'R	1
B020	16442101	GUITAR ROLLER	1
B021	16442111	GUITAR ROLLER HOLDER	3
B022	16442121	G FAR (1)	1
B029	16442131	G FAR (2)	1
B024	16442161	DRIVE PFLT	1
B027	16443251	COLLEFP	2
B032	16443262	G FAR	1
B028	16443274	F TIR	1
B082	16448741	ACT CODE CRAMPER	1
B029	16536121	COLLAP	2
B030	16542211	FRANGE	3
B031	16534251	COLLEFP	2
B032	16534262	F TIR	1
B082	16534971	TAPER FLANGE	1

MODEL : MECHANICAL PWB ASSY

MODEL : MECHANICAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
B035	16578922	SPRING	1
B036	16578941	SPRING	1
R037	16578972	GUIDE PIN SPRING	1
B042	16579172	SPRING	1
B068	16579261	PINCH LINK SP.PLATE	2
A044	16579411	SPRING (REV.ARM)	1
B047	16580681	IMPEDANCE ROLLER SPRING (C)	1
H041	16580762	C.BRAKE SPRING (3)	1
P100	16582031	FRAKE LINK (2)	1
R101	165P2041	LINK RETURN SPRING	1
B102	165P2051	LOCK LEVER SPRING	1
B033	165P2161	TENSION SPRING (M2)	1
R104	165P2201	BRAKE LINK (1)	1
H089	165P2611	IP SPRING NO.2(1)	1
R038	165P2761	S.SOFT BRAKE SPRING	1
R039	165P2771	TU.SOFT BRAKE SPRING	1
B100	165P2931	SPRING (T.A)	1
R050	16628751	SPACER	2
R512	16629291	SLIT WASHER	1
B049	16629782	SLIT WASHER	2
H051	16629412	SLIT WASHER	3
H052	16629422	SLIT WASHER	1
H050	16630591	SLIT WASHER	9
R512	16875971	SCREWS M3X5X15BF	3
	16P76781	SCREW/M3 M2.6+6+15BF	3
8574	16P77731	SPECIAL SCREW	3
	16577541	SCREW 2.6+8+15BF	3
	16877061	SFT SCRF 2+2+7+35KF	1
B505	16878101	SPECIAL SCREW	4
B534	18FF6201	SPECIAL SCRF	2
	18P51031	E.WASHER DIA 4	1
	16516371	VIRF CLAMPER-H	1
	707P0021	FFC CABLE 1FF+45KM	1
R072	79501111	FF HEAD	1
B060	79501151	ACE HEAD ASSY (M2-MONO2)	1
B055	79502074	CAPSTAN MOTOR HMF-3106A	1
B061	82417P1	MOTOR SENSOR SASSY	1
B058	826C1FH1	S.SLANT RAISE SASSY	1
B059	82601PC1	TU.SLANT RAISE SASSY	1
	82601FP1	IP.ROLLER SASSY	1
	82642EP1	PINCH APM SASSY(M2)	1
B108	82642PJ1	JUNCTION PWP SASSY	1
B057	P2674AA1	HEAD OFUM SASSY(P/S-DEV2)	1
B506	91002331	SCRFN L-CPIMS*2.6+15BF	2
B088	92515AU1	ROTARY DRUM S.A (PA,SE-2H)	1
B078	16629251	LOADING BELT	1

MODEL : SET PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
A1101	71129050 JACK TERMINAL (1000G)	1	
A001	16183724 CASSETTE HOUSING ASSY M?	1	
A002	16184351 FRONT PANEL ASSY DX-1000G	1	
A007	16375861 TOP COVER	1	
A102	16445602 SLIDE HINGE	2	
A103	164467131 FRONT COVER DX-1000U	1	
A003	16573831 FRONT COVER SPRING	1	
A108	16582361 BOTTOM PLATE	1	
B532	16631221 FUSE COVER (3)	1	
B533	16876431 SCREW, PTFE 12X15H	12	
B534	16878171 SCREW (TOP)	4	
A008	188E6201 SPECIAL SCREW	9	
16184891 PANEL DOOR ASSY 549910408 SERVICE MANUAL DX 1000G			
K007	79555054 IEC RF CABLE (1.2M) 79769463 WIRELESS REMOTE RD-DIG	1	

MODEL : POWER REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** IC ***			
IC001	79VA0003 IC M5237L UCZ0097ZZ	1	
IC002	79VA0004 IC PQ12R02 UCB0028A2	1	
IC030	79VA0033 IC M5237L UCZ0097ZZ	1	
*** TRANSISTORS ***			
TR001	35V02817 TR, 258949 Q	1	
TR002	35V03516 TR, 2SA733/733A P	1	
TR003	35V43519 TR, 2SC2390	1	
TR005	79VA0005 2SD1266 UAD0090CZ	1	
TR006	35V10510 TR, AA1A4M	1	
TR008	79VA0006 2SD1286 UAD0089AZ	1	
TR009	35V41931 TR, 2SC2785 (E, F, H, J)	1	
TR010	35V10505 TR, AA1A4M	1	
TR011	35V20916 TR, 2SB548	1	
TR012	79VA0080 TR, AN1F4M	1	
*** DIODES ***			
D002	36107522 RECTIFIER, SI ERA15-02	1	
D003	36107522 RECTIFIER, SI ERA15-02	1	
D004	79VA0083 DIODE 11E1	1	
D005	79VA0083 DIODE 11E1	1	
D006	79VA0083 DIODE 11E1	1	
D007	79VA0083 DIODE 11E1	1	
D008	79VA0083 DIODE 11E1	1	
D009	36003954 DIODE 1S2076A	1	
D010	36107522 RECTIFIER, SIERRA15-02	1	
D011	36003954 DIODE 1S2076A	1	
D030	36003954 DIODE 1S2076A	1	
D031	79VA0083 DIODE 11E1	1	
D032	79VA0083 DIODE 11E1	1	
D033	79VA0083 DIODE 11E1	1	
D034	79VA0083 DIODE 11E1	1	
ZD002	36905204 ZENER DIODE, RD20EB	1	
ZD003	36905220 ZENER DIODE, RD30EB	1	
*** TRANSFORMER ***			
PT001	79VA0081 TRANSFORMER NH1311	1	
*** SWITCH ***			
SW001	79VA0071 SF-W101W-01BB, PJC0136Z2Z	1	
*** RESISTORS ***			
R003	79VA0008 1/4W2.2KJ(B(7.5)UEEB22BA	1	
R004	79VA0009 RSPC510HJJSUEFD51BF	1	
R006	79VA0010 1/4W33KGB(7.5)	1	
R007	79VA0011 1/4W33KJ(B(7.5)	1	
R008	79VA0012 1/4W0.22HK, S	1	
R009	79VA0013 1W0.47HK, S	1	
R010	79VA0014 1/4W2.7KJ, B(7.5)	1	
R012	79VA0015 1/4W15KJ,B(7.5)UEEB153BA	1	
R013	79VA0016 1/4W220BJ, B(7.5)	1	

MODEL : POWER REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R014	79VA0017	1/4W1.2KJ, B(7.5)	1
R015	79VA0018	1/4W10KJ, B(7.5)	1
R016	79VA0011	1/4W4.3KG, B(7.5)	1
R017	79VA0019	1/4W680HJ, B(7.5)	1
R018	79VA0020	1/4W22KJ, B(7.5)	1
R020	79VA0015	1/4W15KJ, B(7.5) UEEB153BA	1
R021	79VA0016	1/4W220BJ, B(7.5)	1
R030	79VA0082	RD1/4WPTV8.2KGB (7.5)	1
R031	79VA0019	1/4W680HJ, B(7.5)	1
R032	79VA0011	1/4W33KJ, B(7.5)	1
R033	79VA0011	1/4W33KJ, B(7.5)	1
R034	79VA0076	CHOKECOIL FKOB160MH15	1
L091		*** CAPACITORS ***	
C002	79VA0079	CE04WIC472MA	1
C003	79VA0021	CE04W1J101MA UGAG101BU	1
C004	43026041	CE04W1E470MA	1
C005	79VA0084	CE04W1V222MA	1
C006	42976509	CO92V1H472L, A	1
C007	43026048	CE04W1E332MA	1
C008	43026028	CE04JC470MA	1
C009	43026045	CE04W1E471MA	1
C010	79VA0022	CE04W2A010MA UGAJ1R0BU	1
C011	42311045	CC45SL1H101J, B	1
C012	79VA0023	CE04W2A101MA UGAJ101BU	1
C013	79VA0063	CE04W1H010MA UGAF1R0BU	1
C015	42976525	CQ92V1H104J, A	1
C016	79VA0022	CE04W2A010MA UGAJ1R0BU	1
C017	43026054	CE04W1V101MA	1
C021	79VA0022	CE04W2A010MA UGAJ1R0BU	1
C022	79VA0069	CE04W2A470MA UGAJ470BU	1
C023	79VA0022	CE04W2A010MA UGAJ1R0BU	1
C091	79BA0074	0.1μF UGZ0326Z	1
PC001	79VA0075	POWER SUPPLY CORD IEC EHS02912Z WIRE CLAMPER #2104	1

MODEL : JACK TERMINAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C901	43983306	CE04C0471 (NEW SS)	1
C902	430A8112	CE04C1C470-5BSRA, AT	1
C903	430A8110	CE04C1C220-5BSRA, AT	1
C904	430A8110	CE04C1C220-5BSRA, AT	1
C905	430A8110	CE04C1C220-5BSRA, AT	1
C906	430A8112	CE04C1C470-5BSRA, AT	1
C907	430A8112	CE04C1C470-5BSRA, AT	1
C908	430A8128	CE04C1H010-5BSRA, AT	1
D901	360KA025	DIODE ISS133, AT26	1
IC901	37101250	IC BA7026L	1

MODEL : CASSETTE HOUSING ASSEMBLY

SYMBOL	PARTS NO	DESCRIPTION	QTY
A301	16441731	LOADING BELT	1
A302	35290301	PHOTO TR PT361	2
A303	65330045	TACT SWITCH	2
A304	79502029	DC MICRO MOTOR RF-280R-10350	1
A305	67012026	CASSETTE HOUSE LAMP	1
A306	16582271	MIRROR	1
B070	65907089	REC SAFETY SW	1